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THE

VALUATION OF LANDED PROPERTY.

LONDON: PRINTED BY
SPOTTISWOODE AND CO., NEW-STREET SQUARE
AND PARLIAMENT STREET

RENTS AND PURCHASES;

OR,

THE VALUATION OF LANDED PROPERTY, WOODS, MINERALS, BUILDINGS, &c.

BY

JOHN SCOTT,

AUTHOR OF 'THE FARM VALUER.'

LONDON:
LONGMANS, GREEN, AND CO.
1879.

PREFACE.

THIS little work deals with the entire subject of Real Property Valuations. The field is a wide one, and well admits of a more pretentious treatise on it; but as the usefulness of a handbook of this kind depends on its pages being closely packed, I have preferred to condense the matter as much as possible; and from the concise style in which the book is written, it leaves wonderfully little corn in the field that it has not threshed out, and winnowed too.

It discusses the valuation of Estates of every kind, whether in Land or Houses, &c.; the manner of finding the relative values of the different tenures under which estates are held, Freehold, Copyhold, and Leasehold; the value of Fines on Renewing Leases; and the worth of Reversions. Separate chapters are then devoted to the valuation of Farm Rents; the value of Deer Forests, Grouse Moors, and other Shootings; the Mineral value of Estates; the valuation of growing Timber and Underwoods; Houses and Buildings; Ground-rents; and Property taken by Parliamentary powers for Railways and other public works.

In the form of an Appendix are given the principal Tables in use by valuers and others for purchasing Estates, Leases, and Annuities, for years certain or for lives; for renewing Leases; for finding the value of Reversions; and showing the annual sinking fund that will amount to 1*l*. at the end of any given number of years.

J. S.

28 Gloucester Street, Regent's Park,
London, N.W.: *May* 5, 1879.

CONTENTS.

RENTS AND PURCHASES.

CHAPTER I.

ESTATES.

The value of an estate depends in the first place on whether it is land only, or has minerals, shootings, woods, and buildings as well, and the kind and quality of the same; secondly, on whether you are to buy a lease or the fee-simple thereof.

In order, therefore, to know the true value of an estate, and what a purchaser ought to give for it, first well consider its nature and the casualties it may be subject to; and so, according to the goodness and certainty of the thing, reckon the price at a greater or less rate of profit.

The unit of valuation for all kinds of estates alike is the annual or rental value. This yearly sum represents the interest or profit on the purchase price. The rate of interest, however, is not to be assumed off-hand at what the purchaser would like to make of his money.

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The rent is fixed by the demand for occupation of the estate in question, or the amount the public will give for the use of it; and on the basis of such rates and of current prices only the rent may be computed that any class of property will yield for the time being.

The method to be adopted in finding the rental value of particular subjects will be found fully detailed under the proper heads in the following chapters. The rent, of course, must be *net*, and clear of all rates, taxes, and other burdens that fall on the property; but in a valuation report the average annual amount of these deductions on the gross rent should be carefully particularised, and if the property is in the occupation of a tenant the terms on which it is let must be seen to before fixing the value. The existing rental, it need scarcely be said, may be no evidence of the real annual value of the estate. It may be overlet by means of bonuses given to the tenants, or it may be burdened by taxes imposed since the last valuation; on the other hand, it may be neglected and underlet, or it may have a prospective value compared with which its present rental is insignificant. All these possibilities and many more have to be considered in determining the annual value. The valuer should also have regard not merely to those portions of the estate that already yield a profit, but he should endeavour, where possible, to discover new sources of income, as from minerals that are lying unworked, or other undeveloped resources. At the same time, any facilities for improvement that may be possessed by an estate are not necessarily an element in the market value. A purchaser will generally give something more in consideration of such facilities or prospective advantages, but, if there be a necessity for sale, and no purchaser comes forward who has the capital or inclination to make improvements, the mere possibility of the estate yielding increased revenue will be of no value to the seller.

The number of years' purchase on the net annual value which an estate of any particular kind is worth depends mainly on the rate of interest on money at the period. And as all rents have to be treated as annuities this must needs be so, because the less profit there is on money the greater principal must be expended to bring in the same income as before; that is to say, as money falls cheaper the price of all kinds of purchases gets dearer.

The price of money is, therefore, the general rule to estimate any purchase by, and the first thing to do in valuing is to fix an appropriate rate of interest, as determined by experience of the rate prevailing for the particular kind of estate being dealt with, whether it is land or houses, &c., of one class or another, and as it may be freehold, copyhold, or leasehold.

Freehold land is usually considered the standard of value for all estates, as it has many valuable qualities not common to other kinds of property. It is the safest of all investments, it is indestructible, it does not become less productive if well managed, but usually more so, and it is less subject to foreign influences than any other. It confers a position on the owner which the same amount of capital invested in the funds or any other security fails to do. It also affords its owner the rural pleasures of shooting, hunting, and fishing. So that, while everything is subject to change in this uncertain world, an estate in land is attended with less risk and is of more sure continuance than any other.

Eligible landed estates are for these reasons much sought after, and consequently yield but a small rate of interest. Agricultural land, as a rule, pays a little less than the funds, and as Consols can be purchased in general to bring about 3⅓ per cent., estates of this class come to be fairly worth 33 to 40 years' purchase. There is no absolute rule as to this, however, beyond the funds regulating the price of land to some extent. If the money market is falling, and there is a prospect of long-continued depression, the value of land will suffer more or less depreciation for the time; but if, while money gets cheaper, the produce markets rise, land will increase in value.

When land lets for more than its agricultural value, as for gardens, deer forests, &c., the increase must be deemed of a more artificial character, and it will be worth fewer years' purchase. Other freeholds are rated at the proportion they bear to land, and the present values are about as under:—

Freeholds.

Agricultural land	33 to 40	years' purchase
Garden land	30 „ 33	„
Woodlands	30 „ 33	„
Deer forests, grouse moors, &c.	25 „ 30	„
Building land	25	„
Minerals	12 „ 16	„
Mansions	22 „ 25	„
Houses of the 1st class	20 „ 22	„
„ „ 2nd class	18 „ 20	„
„ „ 3rd class	16 „ 18	„
Labourers' cottages	16 „ 18	„
Business premises: 1st class	18 „ 20	„
„ „ 2nd class	16 „ 18	„

All the various classes of freeholds must be treated alike, and reduced to a net annual income for valuation as an annuity, and it is only in regard to the nature and extent of the allowances and deductions from the rental that have to be made in the estimate that there should be any difference.

When the gross rent and the amount of deductions are ascertained, the price to be given for an estate is soon found. Thus an estate, the gross rental of which is 12,000*l.*—derived, say, 8,000*l.* from farm rents, 560*l.* from shootings, 1,500*l.* from minerals, 1,100*l.* from house rents, and 840*l.* from ground rents, with only deductions amounting to 10 per cent. on farm rents and 12 per cent. on house rents—will be worth 332,960*l.*

	Gross rents	Deductions	Net rents	Years' purchase	Purchase value
	£	£	£		£
Farm rents . . .	8,000	640	7,360	35	257,600
Shootings . . .	560	...	560	25	14,000
Royalties on minerals	1,500	...	1,500	14	21,000
House rents . .	1,100	132	968	20	19,360
Ground rents . .	840	...	840	25	21,000
Totals . . £	12,000	772	11,228	...	332,960

From the purchase money so found there is but one deduction to be made, namely, the cost of conveyance, which, as a rule, bears but little proportion to the value of the estate, as the expenses incurred depend mainly upon the state of the title to be investigated, and the inclination of the vendor or his solicitor to impose obstacles or remove them.

According to the late Mr. C. Wren Hoskyns, the average expense of conveyance where the purchase money was over 1,000*l.*, amounted to about 2 per cent. on the purchase, and when the price was under 1,000*l.* the average cost was found to be about 6 per cent.; but the average in the latter afforded no evidence of the burden in particular cases, some of these costing the purchaser as much as 23 per cent. on the price he paid for the estate. These were only the costs to the purchaser, and in every case the expenses to the vendor were very much greater.

Copyholds.—The difference in value between a freehold and copyhold estate is the sum it will cost to enfranchise the latter. This depends on the nature of the copyhold tenure, which may be either (1) of ancient demesne, (2) of customary freehold, (3) of inheritance, (4) for lives, and (5) for years; but the terms vary also with the custom of the manor and with the different ages of the lives in possession. A copyholder admitted since 1853 can insist on having his land enfranchised on fair terms; and if he was admitted before 1853, and the lord of the manor opposes the enfranchisement, he has only to surrender to a trustee and be re-admitted, when he will be entitled to enfranchise his land, whether the lord likes it or not.

The charges and disabilities from which property of this kind has to be released, in order to its enfranchisement, are quit-rents, fines certain or arbitrary, heriots, and the lord's right in timber and minerals. On copyholds of ancient demesne and of customary freehold the tenant frequently possesses the absolute right of timber; and lands held by such tenure are usually subject to nominal quit-rents and fines certain, or a relief of one or two years' quit-rent on death or alienation, and to the lord's right in mines and minerals. Copyholds of inheritance are held subject to quit-rents, fines certain or arbitrary, and heriots of the best beast or good; and the tenant is entitled to timber for repairs, and to a proportionate part of it, usually, if cut for sale. Copyholds for lives are subject to annual quit-rents, to fines which are generally arbitrary in this case, and to heriots, and the timber is the property of the lords. Copyholds for years are the lowest in the scale, and are usually renewable every seventh year in a 21 years' lease; but no right of renewal exists in the tenant.

The chief charge is the fine payable to the lord on a tenant being admitted, by purchase or otherwise. As the fines are in general payable either on death or alienation, and the latter is a contingency that cannot be otherwise calculated, the only way of arriving at the number of years between each payment is to take the average in a great number of cases. From the Court-Rolls of various manors, it appears that this occurs about once in every thirteen years. The value of the fine can therefore be found by taking it to recur thus often, and reckoning every 1*l.* in the fine at its appropriate rate of interest. Thus, every 1*l.* in the fine, if it is a fine certain, is worth in present money, at 3 per cent., 2·134*l.*; and at 4 per cent. 1·504*l.*; or, if the fine has to be paid immediately, 3·134*l.* at the former rate, and 2 504*l.* at the latter. If the fine is certain, it seldom amounts to much, being usually a particular sum for every acre of land, or for each house; but, if it is arbitrary, the lord is entitled to two years' improved rental value of the property, after deducting quit-rents, but not any taxes or other charges. The sum which must be paid for the extinguishment of an arbitrary fine will therefore be found by taking the present value of it, recurring once in every thirteen years, at two years' purchase. At 4 per cent. interest the amount is 2·462 years' purchase, and twice that makes the value 4·922 years' purchase. It is on this basis that a copyhold estate is generally estimated at five or six years' purchase less than the freehold, the difference being allowed to cover the incidental rights of the lord.

The following Table was calculated by the Government actuary under direction of the Copyhold Commissioners, for the enfranchisement of arbitrary fines on Copyholds of Inheritance, but it is too general in its terms to give the correct value in every case. It is calculated at 4 per cent. interest, and makes no distinction between land and houses in that respect, or in the different intervals of changes in the two; and it makes no difference between a life of 70 and one of a greater age, or between male and female lives. The two years' annual value is also taken at exactly five years' purchase, although it must needs vary with the rate of interest. In other respects the Table appears to have given satisfaction.

ENFRANCHISEMENT OF ORDINARY COPYHOLDS OF INHERITANCE SUBJECT TO ARBITRARY FINES.

Table showing the Number of Years' Purchase on the Annual Value of Property proposed to be Enfranchised in respect of Fines.

Age of copyhold tenant	Number of years' purchase	Nearest value in sterling money			Age of copyhold tenant	Number of years' purchase	Nearest value in sterling money		
		£	s.	d.			£	s.	d.
20	3·	3	0	0	27	3·087,629	3	1	9
21	3·011,936	3	0	2¾	28	3·105,529	3	2	1¼
22	3·022,666	3	0	5¼	29	3·125,330	3	2	6
23	3·033,185	3	0	7¾	30	3·146,782	3	2	11
24	3·044,470	3	0	10½	31	3·169,810	3	3	4¾
25	3·056,761	3	1	1½	32	3·194,521	3	3	10½
26	3·071,101	3	1	5	33	3·221,105	3	4	5

Age of copyhold tenant	Number of years' purchase	Nearest value in sterling money			Age of copyhold tenant	Number of years' purchase	Nearest value in sterling money		
		£	s.	d.			£	s.	d.
34	3·249,669	3	4	11¾	53	4·059,671	4	1	2¼
35	3·281,621	3	5	7½	54	4·111,253	4	2	2½
36	3·314,487	3	6	3¼	55	4·162,803	4	3	3
37	3·347,914	3	6	11½	56	4·213,388	4	4	3
38	3·380,887	3	7	7¼	57	4·264,790	4	5	3½
39	3·415,715	3	8	3¾	58	4·317,596	4	6	4
40	3·449,796	3	8	11¾	59	4·371,464	4	7	5
41	3·485,073	3	9	8¼	60	4·426,120	4	8	6¼
42	3·522,686	3	10	5¼	61	4·481,597	4	9	7½
43	3·562,511	3	11	3	62	4·537,232	4	10	8¾
44	3·605,401	3	12	1¼	63	4·593,613	4	11	10¼
45	3·651,564	3	13	0¼	64	4·651,009	4	13	0
46	3·700,332	3	14	0	65	4·709,629	4	14	2¼
47	3·751,010	3	15	0¼	66	4·768,830	4	15	4½
48	3·802,532	3	16	0½	67	4·828,345	4	16	6¾
49	3·853,841	3	17	0¾	68	4·887,679	4	17	9
50	3·905,266	3	18	1¼	69	4·945,469	4	18	10¾
51	3·956,733	3	19	1½	70	5·000,000	5	0	0
52	4·008,130	4	0	1¾					

Heriot custom entitles the lord of the manor to a heriot of the best beast or chattel belonging to a deceased copyhold tenant at the time of his death. The heriot bears no proportion to the value of the property. The terms of enfranchisement may, however, be calculated on the same principle as that applied in the case of an arbitrary fine; substituting for annual value one half of the value of the heriot when it is payable on death or alienation, and one-quarter of the value of the heriot when it is payable on death only. Very generally the enfranchisement is made at two and a half heriots, on the average of the last three.

Quit-rents should be estimated at 28 years' purchase.

The value of the lord's right in timber and minerals has to be added to the value of the fines, heriots, and quit-rents, as the cost of enfranchisement. When there is timber or minerals on the property, which neither lord nor copyholder can touch without consent of the other, the value should be equally portioned if each has a right in proportion to half.

Leaseholds.—Leasehold property is more precarious than either freehold or copyhold, and should be bought to pay a higher profit, as over and above interest on the purchase money, it must include as much more interest as will amount to the purchase-money at the end of the term.

Estates of this nature are held either for a term of years certain, or for a life or lives. They differ not only as to origin and the nature of acknowledgment to the superior landlord, but in the terms of holding, and have to be treated accordingly. The circumstances that are to be more immediately attended to are those of the peculiar nature and conditions of the lease, and the difference between the lease rent and the full or actual value.

The rule on which all calculations as to the value of leaseholds or leases is made is this: First find the net annual value or profit which the tenant has in the lease, and the years for which it is to continue; then the value of the said number of years, at the proper rate of interest, multiplied by the annual value, is the purchase price of the estate.

Let it be a leasehold for years certain—say an estate in land of the net yearly value of 100*l.*, and to continue 21 years. At 3 per cent. interest a lease of 21 years is worth 15·415 years' purchase (Appendix, Table I.), so that the price to be given for the estate would in that case be 1541·5*l.*

If, instead of the full value of the leasehold, it is only the improvements in the lease of a farm or house that have to be purchased, the value will be found in the same way. Suppose the lease rent of a farm is 100*l.* a year, but from improvements put upon it it is now worth 150*l.* of annual rent, and that ten years of the lease are yet to run, the value of the lease which is to continue ten years is, on the 5 per cent. table, 7·722 years' purchase, which, multiplied by 50*l.*, the beneficial value per annum, gives 386·100*l.* as the purchase price of the improvements put upon the lease.

It would be different, however, if the same farm was to be sold subject to the incumbrance of the lease, as the improved rental would then become a deduction for the term of the lease on the full value of the farm. The mode of finding the value in this case would be, after ascertaining the difference between the lease rent and the full rental value, to multiply it by the number of years unexpired in the lease, and deduct the product in full from the full rental value. For example, if the freehold in the above case is estimated at 33 years' purchase of the improved rental, it will be worth 4,950*l.*, but deducting the difference of 50*l.* a year for 10 years, the purchase value of the estate is only 4,450*l.*

Life leaseholds are valued on the same principles as leaseholds for years certain. If it is an estate of the yearly value of 100*l.*, held on a single life aged 30, at 5 per cent. interest, it will be worth 14·72 years' purchase, or 1,472*l.* If the same estate is held on two joint lives, aged respectively 30 and 50, at the same rate of interest as before, it will be worth 10·40 years' purchase, or 1,040*l.*; and if held on the longest of two lives of the same ages, it will be worth 15·98 years' purchase, or 1,598*l.* If held on the longest of three lives, aged 20, 60, and 40, the estate will be worth 17·21 years' purchase, or 1,721*l.*

The fine to be paid for renewing or extending a lease is found by subtracting the present value of the original lease from the present value of the lease renewed. Suppose a lease was originally granted for twenty-one years, eleven of which are expired, and the net yearly rent is 100*l.*, what is the value to renew, allowing interest at the rate of 5 per cent.?

21 years, at 5 per cent., are worth .	12·821	years' purchase
11 years, ,, ,, .	8·306	,,
	4·515	
	100	
Fine to be paid on renewing .	£451·500	

Reversions.—All that is written thus far applies to purchases of present benefit. But where an estate or a lease in anything is bought for ready money but does not come into possession of the buyer, or at least can yield him no profit, until perhaps a considerable term of years be past, it becomes a purchase in Reversion, and has to be dealt with in another way.

In these bargains as in others, of course, the buyer must first look into the nature and quality of the thing and the certainty thereof, whether it be land or houses, freehold or leasehold, and accordingly find out the rate of interest fittest for it; then, after estimating the value as if it were already in possession and of present benefit, deduct the value of the years that must elapse before the reversion falls in. If this will only happen at the end of a long lease, the reversion will be worth very little to begin with, but it increases in value year by year to the end of the lease.

The worth of 1*l.* in reversion at the end of any number of years is found by taking the principal sum, less the rate of interest fixed on, for the first year's value, and decreasing the reduced sum in continual proportion from one year upwards. If the rate of interest, for example, is 5 per cent., the present value of 1*l.* at the end of one year will be ·952*l.*, or 19*s.* 0½*d.*

£105 : £100 :: £1 : £·952.

And the value of 1*l.* at the end of two years will be ·907*l.*

£105 : £100 :: £·952 : £·907,

and so on, decreasing every year.

The reversion, therefore, to an estate, which is valued on the 5 per cent. table, at the end of one year is worth ·952*l.* for every 1*l.* of annual value, and the reversion to it at the end of two years is worth ·907*l.* for every 1*l.* of annual value.

By adding these two numbers (·952 + ·907*l.*), the sum obtained is the purchase value of an estate, lease, or annuity of 1*l.* per annum to continue two years, at 5 per cent. interest; and it is on this principle that the table of purchases at page 1 of Appendix is calculated, as is here shown.

Years	Value of £1 at the end of any number of years, from one to ten, at 5 per cent. interest	Value of an estate, lease, or annuity of £1 per annum, to continue any number of years, from one to ten, at 5 per cent. interest
	£	£
1	·952	·952
2	·907	1·859
3	·864	2·723
4	·823	3·546
5	·783	4·329
6	·747	5·076
7	·710	5·786
8	·677	6·463
9	·645	7·108
10	·614	7·722

The tables to be used in calculating the value of reversions are X. XI. and XII. in Appendix, and as to the manner of doing so take the following examples.

A piece of freehold land of 50*l.* yearly rent, being worth 33⅓ years' purchase, its full value will be 1,666*l.* 13*s.* The land, however, is mortgaged or leased out for 21 years, and the question is to find its present value in ready money with possession deferred for that period. Being a reversion in land, it is fit that the rate of interest should not be more than 3 per cent. and 1*l.*

at that rate at the end of 21 years is worth but ·5375*l.* in ready money. Therefore,

£1,666 13*s.* × ·5375 = £895 16*s.* the value of the reversion.

The same result is arrived at by deducting the value of the lease, or years engaged, from the value of the freehold, and then multiplying by the annual value.

The full value is	33·333	years' purchase
The 21 years at 3 per cent. are worth	15·417	„
	17·916	
	50	
	£895 16*s.*	

If the reversion of a house is to be purchased, first find the rate of interest it is fit to be valued at, and then do likewise.

Suppose the yearly rent of the house is 50*l.*, and it is worth 20 years' purchase, the full value will be 1,000*l.* If the reversion to this is after 21 years, 1*l.* at the end of that time, on the 5 per cent. table, is worth ·3589*l.* in ready money. And 1,000*l.* × ·3589 = 358*l.* 18*s.* the purchase value.

To purchase the reversion to a lease in houses or land, the same rules apply. First find the full value of the estate, then the worth of the reversion of 1*l.* after the given number of years, at the rate of interest which is fit for the class of property in question, and the two multiplied together give the value in ready money; or, take the full number of years in the lease, deduct the value of the years deferred, and multiply the remainder by the annual value of the estate.

If the estate is held on a life or lives, instead of for years certain, the life tables must be used in making the calculations.

CHAPTER II.

FARMS.

UNDER this head, rental value alone need be treated of, the purchase value of land having been noticed at some length in the preceding chapter.

Rent here is properly defined as all the difference between the value and the cost of what the land or farm produces. It varies in proportion with the amount of produce, with the price of that produce, and with the price of labour and other things. Anything which tends to cheapen the cost of production, as an invention or improvement in agricultural implements, or the discovery of a new manure, increases the rent, as soon as the benefit of that improvement or discovery becomes general. The farmer's profit, on the other hand, is increased by an increase in the produce, and chiefly when that increase is due to his own superior skill, industry, or capital.

The considerations that determine the rent of a farm are chiefly these:

1. The goodness of the soil.
2. The situation, aspect, and exposure of the lands.
3. The crops the land is fitted to grow.

4. The cost of production.

5. The condition or state the farm is in.

6. The conditions under which the occupier holds and farms.

The *goodness of a soil* depends on its origin, its texture, its composition, its colour, its absorptive power, its depth, and on the character of the subsoil. All soils are originally formed from the solid rock, and, as such, all are composed of silicates of alumina and other bases in varying proportions. Natural soils are those which come from the rocks which immediately underlie them. The surface soils, however, are very often the drift and *débris* of other rocks than those *in situ*. Whatever class the soil belongs to, it may either be a simple clay or sand, or it may be a compound clay, sand and gravel; and it may be good, or it may be barren. A fertile soil must contain all the elements of plant food, but some of the material substances are more important than others, and a soil which contains all the elements of plant food may yet be barren or nearly so. In general, it holds good that the soils that furnish most nitrogen, phosphoric acid, and potash are the most fertile, and both produce and rent are found to be closely in proportion to the quantity of these chief constituents that are present in the soil. What may be the exact measure of fertility in soils, however, is not known. Knop considers the silicates of the *sesquioxides* to be a good criterion, having in his researches found no soil fertile which contained less than 3 per cent. of these. But sometimes more depends on the state of combination in which the plant food exists in the soil than on the greater or less amount of any one of the constituents. An excess of one or more of the essential elements will also cause infertility in a soil, as much as, or often more so than, the presence of some noxious substance. Nor must the absorptive power and the colour of a soil be overlooked. Soils of a dark colour absorb more heat, and cause the crops to germinate and ripen sooner than soils of a light colour. And the soils which absorb most heat and moisture are those which weather best They are also the ones which have most the quality of absorbing ammonia from the atmosphere; which power organic matter and the silicates of alumina and iron are known to possess in the greatest degree. The depth of a soil, and the nature of the subsoil, have likewise to be examined before its value can be rightly estimated. The deepest soil, if it be a pure clay, sand, or peat, may be of less value than one which is not half so deep; and the best and richest soil, if it be only a few inches deep, and lie upon a cold wet clay or on a hungry gravel, may be of less value than a leaner soil of greater depth, or lying upon a fat clay or warm limestone.

The land valuer should both know and be able to compare the soils of the different formations, in point of origin, composition, and nature. For without this he cannot tell how it is that in some places stony soils are barren and the stones have to be gathered off the land, while in other parts they use stones to manure and better the ground with; or how it is that the richest and the poorest land are both met with in the same formation—as in the Old Red Sandstone, where the rich, warm, early and dark-red soils owe their colour and good quality to the iron in their composition, and the soils of the same formation change to barrenness when the yellow or grey sandy beds come to the surface; or how the upper grey beds of the magnesian limestone are of great agricultural value, while the lower yellow beds of the same formation are just as bad for farming; or how iron in the soil is so useful and valuable to the agriculturist in some forms, and so hurtful when it is present in other forms.

It has been observed that iron is a great cause of fertility in the old Red Sandstone, and it plays a very important part in all soils. The action of the atmosphere in forming soils is mainly due to the iron in their composition absorbing and carrying the oxygen of the air into the soil and oxidising and weathering the hard materials of the rocks, and it is one of the advantages of stirring and cultivating soils that it is enabled to do this. In the form of *protoxide*, and of a light green colour, iron exists in the subsoil, but on exposure it absorbs an extra quantity of oxygen, and takes the form of *peroxide*, which gives the red colour to our surface soils. Under the surface it exists also in the form of *black oxide*; and in peat bogs it is found as *ferrous sulphide* or *sulphide of iron*, in which state it is very noxious to plants.

A knowledge of their composition, it is seen, goes far to explain the value of colour in soils. It shows at once the reason of the thing: why one colour is evidence of a better soil than another colour; and how one colour may be good in one geological formation, and yet have the most opposite character when it appears in a different formation. It gives the key to the general superiority of black, red, brown, and grey soils over others that are white, yellow, green, or blue in colour. It shows, for example, that black mould owes its goodness to its vegetable origin; the fat, red mould of the Old and New Red Sandstone its richness to the quantity of *peroxide* of iron in these soils; the white clays of every kind their poorness to the large proportion of silicate of alumina which they contain; the grey soils of the magnesian limestone their greater fruitfulness, compared with the yellow soils of the same formation, to the smaller quantity of magnesia in the former; the green colour of some subsoils, to *protoxide* of iron, or, as in the case of the greensand, to silicate of iron; and the brown surface colour of the same soils to *peroxide* of iron; that the dark-blue soils of the mountain limestone are more fertile than those of a lighter colour because the iron in the latter oxidises and weathers them more readily; and that, with the exception perhaps of the flinty chalk soils, which are less rich than the chalk marls, the darkest soils of all other kinds are the best.

Another indication of the nature and quality of a soil is the natural produce of the land, which requires to be closely studied, not only in regard to the kinds of plants, but as to their vigour of growth, and the early or late period of the season at which they come to maturity; for, apart from the effects of climate and other causes, it is well known that the prevalence of certain species of weeds, grasses, and other plants on different soils is, to a great extent, determined by the constituents of the soils which they inhabit. The most fertile soils, that are capable of producing a greater variety, are, however, less distinguished by any kind of plants peculiar to them than those of inferior quality. But the indigenous plants are always a pretty safe index to the character of a soil, inasmuch as they must derive the whole of their inorganic matter from the soil, and they cannot grow on soils greatly or altogether deficient in the chief ash constituents. Unfortunately, there is yet no complete and authentic analysis of the ash constituents of the principal weeds and wild plants, so that the teaching of chemistry is not meanwhile freely available on this part of our subject, and the practical man has perforce to fall back upon the characteristics which long experience and observation of various plants attach to their appearance on different soils.

In this way certain plants are known to indicate a soil that is fertile for grain, grass, or other crops; while others are equally sure signs of barrenness, of wet or parched soils, or of soils in which sand, clay, lime, organic matter, or something else forms the chief part.

It is found, for example, that birch, broom, furze, and mosses only appear naturally on poor, indifferent, or barren soils, as do also sheep's-sorrel, yellow-rattle or cock's-comb, corn crowfoot or hungerweed, quaking-grass, maiden-hair grass, bluebell, wild thyme, and bird's-foot; while ground that loads itself with strong and lusty weeds, such as hemlocks, nettles, docks, and large black thistles, is fertile for all kinds of grain; honeysuckle, dandelion, and clover are found in soils very fertile in grass and herbage; wild parsnip, common burnet, and coltsfoot are partial to calcareous soils; cow-parsley indicates a strong soil; the common daisy and ragweed, loamy soils; knot-grass or hogweed, sandwort, and common camomile, dry, sandy, or gravelly soils; crowfoot or buttercup, pilewort, meadow saxifrage, great burnet, and marsh or red thistle, prevail only in moist soils; crested dog's-tail grass, sweet-scented vernal grass and various-leaved fescue are certain signs of dry sound land; white bent, upright bent, and creeping-rooted bent are common to damp or moist soils; stool bent, cotton-grass, deer-hair, and heath, ling, or heather are plants only found on moss or peat soils; sheep fescue, hard fescue, and upright mat-grass indicate sandy elevated soils; and tufty hair-grass and pry are natural to damp clayey soils.

The *situation, aspect, and exposure of the lands* are all matters of the utmost importance as affecting fertility and rental value. The soil, as a rule, partakes of the climate wherein it is; and as that is more hot or more cold, more moist or more dry, so is the soil ever more or less fruitful. A cold wet clay, for instance, is much more fruitful in the south than in the north; and it is of small benefit that land will grow a heavy crop of straw if it will not mature the grain, or if it ripens so late that it cannot be carried in fit condition, but has to be left to rot in the field. In hilly countries, too, a north or south aspect makes all the difference whether the land gets the morning sun, and is dry, healthy, and early, or just the reverse. The lay or exposure of the ground to cold winds and storms is not less to be regarded, for some farms in high districts are far more easily stormed than others; and, besides the question of greater predisposition to disease on such lands, neither stock nor crops thrive so well when exposed to the cold blasts of a shelterless and intemperate climate.

Then much depends on the location of a farm, and how it is situated as to roads, railways, and markets. The selfsame land near a town is more valuable than when more remote from the growth of population, not merely on account of a readier market for the sale of produce, but from the greater facility for getting labour and manure—and this value is more marked in the immediate vicinity of very large towns, or where the population masses itself in new centres, the demand for garden, accommodation, and building land being then greatest. The poorest land, when so fortunately circumstanced, may be of more value than land of the greatest natural fertility in an isolated place. The expense of bringing the produce to market may more than overbalance the advantage of fertility. But for the bulk of agricultural produce the monopoly now to be enjoyed in this respect is nothing to what it has been in the past. As the carriage or freight of produce daily becomes easier and cheaper, it brings remote lands nearer market, and equalises to some extent the value of land in different districts and in different countries.

The *crops the land is fitted to grow* is a question which thus resolves itself into one of soil and climate. The poorest land of any kind grows fewer kinds and varieties of crops, and the produce grown is of inferior value compared with the best land of the same class; and this difference is so much greater when the poorest soil happens to be in the worst climate. Amongst the inquiries that suggest themselves on this point are these: Will the land serve best for corn, roots, meadow, or pasture? If it is ploughed land, what corn and roots agree best with it? Will it grow wheat, peas, beans, oats, and barley, or only some of them? Will it grow mangolds, kohl rabi, cabbage, and carrots, or only swedes and turnips? And will it carry sheep in winter? If grass land, is it best suited for grazing and breeding purposes? or will it fatten stock?

The *cost of production* will depend on the outlay which has to be made for labour, seed, manure, and other purchases, on the amount of capital that has to be employed, and on the amount of rates, taxes, and tithes with which the land is burdened. The cost of working differs with the texture of the soil, the steepness or otherwise of the ground, the situation in regard to labour and markets, and with the crops and system of farming best suited to the soil and the district. The amount of ingoing valuation should also be considered here, for if tillages and back-rents are to pay on bare fallows, or anything else has to be purchased which it is not essential to the success of an occupier that he should purchase on entering the farm, it takes up so much capital which he could better employ, and becomes a charge on the land, which, indirectly of course, has to be paid out of rent.

The *condition the farm is in* has to be considered in regard to the existing state of the soil, drains, fences and gates, roads, buildings, and shelter. What is termed 'condition of soil' is acquired fertility as distinct from natural fertility, and it depends on the amount of manure, tillage, and other ameliorations put upon the land. On arable or cultivated land, one of the very best tests in this respect is to be found in the sown-down pastures—their cleanness and freedom from weeds, the grasses and clovers in possession of the soil, and the colour, strength, number, and state of growth of the plants. Land when once let down in condition from insufficient tillage or manuring, or when it has been allowed to get over-run with weeds, is very tedious and costly to bring round again. In every case the fit state should be assumed in making a valuation, and then where anything is wanting in condition of soil, drainage, fences, or buildings, &c., the outlay required to make it good should be estimated and allowed for.

Nothing affects the value of land for agriculture more than *the conditions under which it is held and farmed.* Yet, strange to say, nothing in connection with it is, generally speaking, more lightly esteemed as a means of developing at once the rental value and the food supply. As a rule, the occupier of the land is hindered from making the most of it; and this loss falls, not on him alone, but on the landlord, and on the nation at large. Length and security of tenure, compensation for unexhausted improvements, and freedom to crop and sell to the best advantage, are all elements of value, and of no small value either. The mere concession or withholding of these terms makes a difference of quite one-third more or less in the value of a farm. The resources of the land cannot be fully developed under less favourable conditions, and high farming is a doubtful, not to say an impossible, success if it does not increase both the produce and the rental value.

On the foregoing data the rent has to be calculated. The ratio of rent to produce and expenses is, however, very variable. It differs with the nature and goodness of the land, with the kind of farm, whether it is arable or pasture, with the system of farming, with the methods and appliances used in working, with the capital of agriculture, and with the current prices of produce, labour, and manure.

In the case of arable land, this proportion takes a very wide range, as will be seen from the following schedules, which have been calculated on present prices and conditions of agriculture, for light, heavy, and mixed soils of different quality, when farmed on different rotations, and for rents varying from 8*s.* to 8*l.* per acre. The tables are based on manual labour at 3*s.*, and horse-work at 3*s.* 4*d.* per day; with a farming capital of from 30*s.* to 18*l.* per acre, and allowing 10 per cent. on capital to cover risk and insurance, 5 per cent. for interest, and 5 per cent. for the farmer's own labour and profit.

Light Soils.

PRODUCE — Average Annual per acre	4-Course						PRODUCE — Average Annual per acre	5-Course						PRODUCE — Average Annual per acre	6-Course						RENT, including Rates, Taxes, and Tithe
	Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Interest on Capital, Farmer's Profit		Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Interest on Capital, Farmer's Profit		Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Interest on Capital, Farmer's Profit	Per acre
	Per acre							Per acre							Per acre						
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
70	18	13	12	8	5	6	62	15	10	11	8	4	6	53	11	7	10	8	3	6	8
72½	18	13	12	8½	5	7	64½	15	10	11	8½	4	7	55½	11	7	10	8½	3	7	9
76	18½	13½	12	9	5	8	68	15½	10½	11	9	4	8	58½	11	7½	10	9	3	8	10
78½	18½	13½	12	9½	5	9	70½	15½	10½	11	9½	4	9	61½	11½	7½	10	9½	3	9	11
82	19	14	12	10	5	10	73½	15½	11	11	10	4	10	64½	11½	8	10	10	3	10	12
84½	19	14	12	10½	5	11	76½	16	11	11	10½	4	11	67	11½	8	10	10½	3	11	13
88	19½	14½	12	11	5	12	79½	16	11½	11	11	4	12	70	11½	8½	10	11	3	12	14
91	20	15	12	11½	5	13	83	16½	12	11	11½	4	13	73½	12	9	10	11½	3	13	15
94	20	15	12	12	5	14	85½	16½	12	11	12	4	14	76	12	9	10	12	3	14	16
96½	20	15	12	12½	5	15	88	16½	12	11	12½	4	15	78½	12	9	10	12½	3	15	17
99½	20½	15	12	13	5	16	90½	16½	12	11	13	4	16	81½	12½	9	10	13	3	16	18
102	20½	15	12	13½	5	17	93	16½	12	11	13½	4	17	84	12½	9	10	13½	3	17	19
105½	21	15½	12	14	5	18	96½	17	12½	11	14	4	18	87½	13	9½	10	14	3	18	20
109	21	15½	13	14½	5	19	100	17	12½	12	14½	4	19	91	13	9½	11	14½	3	19	21
111½	21	15½	13	15	5	20	103	17½	12½	12	15	4	20	93½	13	9½	11	15	3	20	22
114½	21½	15½	13	15½	5	21	105½	17½	12½	12	15½	4	21	96½	13½	9½	11	15½	3	21	23
117	21½	15½	13	16	5	22	108	17½	12½	12	16	4	22	99	13½	9½	11	16	3	22	24
120½	22	16	13	16½	5	23	111½	18	13	18	16½	4	23	102½	14	10	11	16½	3	23	25
123	22	16	13	17	5	24	114	18	13	12	17	4	24	105	14	10	11	17	3	24	26
125½	22	16	13	17½	5	25	116½	18	13	12	17½	4	25	107½	14	10	11	17½	3	25	27
128½	22½	16	13	18	5	26	119½	18½	13	12	18	4	26	110½	14½	10	11	18	3	26	28
131	22½	16	13	18½	5	27	122	18½	13	12	18½	4	27	113	14½	10	11	18½	3	27	29
134½	23	16½	13	19	5	28	125½	19	13½	12	19	4	28	116½	15	10½	11	19	3	28	30
137	23	16½	14	19½	5	28	128	19	13½	13	19½	4	28	119	15	10½	12	19½	3	28	31
139½	23	16½	14	20	5	29	130½	19	13½	13	20	4	29	121½	15	10½	12	20	3	29	32
142½	23½	16½	14	20½	5	30	133½	19½	13½	13	20½	4	30	124	15	10½	12	20½	3	30	33
145	23½	16½	14	21	5	31	136	19½	13½	13	21	4	31	127	15½	10½	12	21	3	31	34
148½	24	17	14	21½	5	32	139	19½	14	13	21½	4	32	130	15½	11	12	21½	3	32	35
151	24	17	14	22	5	33	141½	19½	14	13	22	4	33	132½	15½	11	12	22	3	33	36

153½	24	17	14	22½	5	34	144	19½	14	13	22½	4	34	[illegible]	[illegible]	[illegible]	[illegible]				
156½	24½	17	14	23	5	35	146½	19½	14	13	23	4	35	137½	15½	11	12	23	3	35	38
159	24½	17	14	23½	5	36	149	19½	14	13	23½	4	36	140	15½	11	12	23½	3	36	39
161½	25	17½	14	24	5	36	151½	20	14½	13	24	4	36	142½	16	11½	12	24	3	36	40
165	25	17½	15	24½	5	37	155	20	14½	14	24½	4	37	146	16	11½	13	24½	3	37	41
167½	25	17½	15	25	5	38	157½	20	14½	14	25	4	38	148½	16	11½	13	25	3	38	42
169½	25½	17½	15	25½	5	38	159½	20½	14½	14	25½	4	38	150½	16½	11½	13	25½	3	38	43
172	25½	17½	15	26	5	39	162	20½	14½	14	26	4	39	153	16½	11½	13	26	3	39	44
174	26	17½	15	26½	5	39	164	21	14½	14	26½	4	39	155	17	11½	13	26½	3	39	45
176½	26	17½	15	27	5	40	166½	21	14½	14	27	4	40	157½	17	11½	13	27	3	40	46
178	26	17½	15	27½	5	40	168	21	14½	14	27½	4	40	159	17	11½	13	27½	3	40	47
181	26½	17½	15	28	5	41	171	21½	14½	14	28	4	41	162	17½	11½	13	28	3	41	48
184	26½	18	15	28½	5	42	173½	21½	14½	14	28½	4	42	164½	17½	11½	13	28½	3	42	49
186	27	18	15	29	5	42	176	22	15	14	29	4	42	167	18	12	13	29	3	42	50
190½	27	18	16	29½	6	43	180½	22	15	15	29½	5	43	170½	18	12	14	29½	4	43	51
194	28	18	16	30	6	44	184	23	15	15	30	5	44	173	18	12	14	30	4	44	52
196½	28	19	16	30½	6	44	185½	23	15	15	30½	5	44	175½	19	12	14	30½	4	44	53
199	28	19	16	31	6	45	188	23	15	15	31	5	45	178	19	12	14	31	4	45	54
203½	29	20	16	31½	6	46	192½	24	16	15	31½	5	46	182½	20	13	14	31½	4	46	55
205	29	20	16	32	6	46	194	24	16	15	32	5	46	184	20	13	14	32	4	46	56
207½	29	20	16	32½	6	47	196½	24	16	15	32½	5	47	186½	20	13	14	32½	4	47	57
210	30	20	16	33	6	47	199	25	16	15	33	5	47	189	21	13	14	33	4	47	58
212½	30	20	16	33½	6	48	201½	25	16	15	33½	5	48	191½	21	13	14	33½	4	48	59
216	31	21	16	34	6	48	205	26	17	15	34	5	48	195	22	14	14	34	4	48	60
218½	31	21	17	34½	6	48	207½	26	17	16	34½	5	48	197½	22	14	15	34½	4	48	61
221	31	21	17	35	6	49	210	26	17	16	35	5	49	200	22	14	15	35	4	49	62
223½	32	21	17	35½	6	49	212½	27	17	16	35½	5	49	202½	23	14	15	35½	4	49	63
226	32	21	17	36	6	50	215	27	17	16	36	5	50	205	23	14	15	36	4	50	64
229½	33	22	17	36½	6	50	218½	28	18	16	36½	5	50	208½	24	15	15	36½	4	50	65
231	33	22	17	37	6	50	220	28	18	16	37	5	50	210	24	15	15	37	4	50	66
233½	33	22	17	37½	6	51	222½	28	18	16	37½	5	51	212½	24	15	15	37½	4	51	67
237	34	22	17	38	6	51	225	29	18	16	38	5	51	216	25	15	15	38	4	51	68
239½	34	22	17	38½	6	52	227½	29	18	16	38½	5	52	218½	25	15	15	38½	4	52	69
243	35	23	17	39	6	52	231	30	19	16	39	5	52	222	26	16	15	39	4	52	70
245½	35	23	18	39½	6	52	233½	30	19	17	39½	5	52	224½	26	16	16	39½	4	52	71
249	36	23	18	40	6	53	237	31	19	17	40	5	53	227	26	16	16	40	4	53	72
250½	36	23	18	40½	6	53	238½	31	19	17	40½	5	53	229½	27	16	16	40½	4	53	73
252	36	23	18	41	6	54	241	31	19	17	41	5	54	232	27	16	16	41	4	54	74
255½	37	24	18	41½	6	54	244½	32	20	17	41½	5	54	235½	28	17	16	41½	4	54	75
257	37	24	18	42	6	54	246	32	20	17	42	5	54	237	28	17	16	42	4	54	76
259½	37	24	18	42½	6	55	248½	32	20	17	42½	5	55	239½	28	17	16	42½	4	55	77
262	38	24	18	43	6	55	251	33	20	17	43	5	55	242	29	17	16	43	4	55	78
264½	38	24	18	43½	6	56	253½	33	20	17	43½	5	56	244½	29	17	16	43½	4	56	79
268	39	25	18	44	6	56	257	34	21	17	44	5	56	248	30	18	16	44	4	56	80
270½	39	25	19	44½	6	56	259½	34	21	18	44½	5	56	250½	30	18	17	44½	4	56	81
272	39	25	19	45	6	56	261	34	21	18	45	5	56	252	30	18	17	45	4	56	82
274½	40	25	19	45½	6	56	263½	35	21	18	45½	5	56	254½	31	18	17	45½	4	56	83

Light Soils—continued.

4-Course							5-Course							6-Course							
Produce — Average Annual per acre	Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Interest on Capital, Farmer's Profit	Produce — Average Annual per acre	Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Interest on Capital, Farmer's Profit	Produce — Average Annual per acre	Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Interest on Capital, Farmer's Profit	Rent, including Rates, Taxes, and Tithe
	Per acre							Per acre							Per acre						Per acre
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
276	40	25	19	46	6	56	265	35	21	18	48	5	56	256	31	18	17	46	4	56	84
279½	41	26	19	46½	6	56	268½	36	22	18	46½	5	56	259½	32	19	17	46½	4	56	85
282	41	26	19	47	6	57	271	36	22	18	47	5	57	262	32	19	17	47	4	57	86
283½	41	26	19	47½	6	57	272½	36	22	18	47½	5	57	263½	32	19	17	47½	4	57	87
286	42	26	19	48	6	57	275	37	22	18	48	5	57	266	33	19	17	48	4	57	88
287½	42	26	19	48½	6	57	276½	37	22	18	48½	5	57	267½	33	19	17	48½	4	57	89
291	43	27	19	49	6	57	280	38	23	18	49	5	57	271	34	20	17	49	4	57	90
296½	44	27	20	49½	7	58	296½	44	27	20	49½	7	58	296½	44	27	20	49½	7	58	91
298	44	27	20	50	7	58	298	44	27	20	50	7	58	298	44	27	20	50	7	58	92
300	44½	27	20	50½	7	58	300	44½	27	20	50½	7	58	300	44½	27	20	50½	7	58	93
301½	44½	27	20	51	7	58	301½	44½	27	20	51	7	58	301½	44½	27	20	51	7	58	94
305½	45	28	20	51½	7	59	305½	45	28	20	51½	7	59	305½	45	28	20	51½	7	59	95
308	45	28	20	52	7	59	308	45	28	20	52	7	59	308	45	29	20	52	7	59	96
310	45½	28	20	52½	7	59	310	45½	28	20	52½	7	59	310	45½	29	20	52½	7	59	97
312	46	29	20	53	7	59	312	46	29	20	53	7	59	312	46	29	20	53	7	59	98
315	46½	29	20	53½	7	60	315	46½	29	20	53½	7	60	315	46½	29	20	53½	7	60	99
317	47	29	20	54	7	60	317	47	29	20	54	7	60	317	47	29	20	54	7	60	100
328	49	30	21	55	7	61	328	49	30	21	55	7	61	328	49	30	21	55	7	61	105
339	51	31	22	56	7	62	339	51	31	22	56	7	62	339	51	31	22	56	7	62	110
350	53	32	23	57	7	63	350	53	32	23	57	7	63	350	53	32	23	57	7	63	115
361	55	33	24	58	7	64	361	55	33	24	58	7	64	361	55	33	24	58	7	64	120
372	57	34	25	59	7	65	372	57	34	25	59	7	65	372	57	34	25	59	7	65	125
383	59	35	26	60	7	66	383	59	35	26	60	7	66	383	59	35	26	60	7	66	130
394	61	36	27	61	7	67	394	61	36	27	61	7	67	394	61	36	27	61	7	67	135
405	63	37	28	62	7	68	405	63	37	28	62	7	68	405	63	37	28	62	7	68	140
416	65	38	29	63	7	69	416	65	38	29	63	7	69	416	65	38	29	63	7	69	145
427	67	39	30	64	7	70	427	67	39	30	64	7	70	427	67	39	30	64	7	70	150
438	69	40	31	65	7	71	438	69	40	31	65	7	71	438	69	40	31	65	7	71	155
449	71	41	32	66	7	72	449	71	41	32	66	7	72	449	71	41	32	66	7	72	160

Heavy Soils.

4-Course							5-Course							6-Course							
PRODUCE — Average Annual per acre	Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Int. on Capital, Farmer's Profit	PRODUCE — Average Annual per acre	Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Int. on Capital, Farmer's Profit	PRODUCE — Average Annual per acre	Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Int. on Capital, Farmer's Profit	RENT, including Rates, Taxes, and Tithe
	Per acre							Per acre							Per acre						Per acre
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
73	18	18	12	8	3	6	63	15	13	11	8	2	6	55	11	10	10	8	2	6	8
75½	18	18	12	8½	3	7	65½	15	13	11	8½	2	7	57½	11	10	10	8½	2	7	9
79	18½	18½	12	9	3	8	69	15½	13½	11	9	2	8	60½	11	10½	10	9	2	8	10
81½	18½	18½	12	9½	3	9	71½	15½	13½	11	9½	2	9	63½	11½	10½	10	9½	2	9	11
85	19	19	12	10	3	10	74½	15½	14	11	10	2	10	66½	11½	11	10	10	2	10	12
87½	19	19	12	10½	3	11	77½	16	14	11	10½	2	11	69	11½	11	10	10½	2	11	13
91	19½	19½	12	11	3	12	80½	16	14½	11	11	2	12	72	11½	11½	10	11	2	12	14
94½	20	20	12	11½	3	13	84	16½	15	11	11½	2	13	75½	12	12	10	11½	2	13	15
97	20	20	12	12	3	14	86½	16½	15	11	12	2	14	78	12	12	10	12	2	14	16
99½	20	20	12	12½	3	15	89	16½	15	11	12½	2	15	80½	12	12	10	12½	2	15	17
102½	20½	20	12	13	3	16	91½	16½	15	11	13	2	16	83½	12½	12	10	13	2	16	18
105	20½	20	12	13½	3	17	94	16½	15	11	13½	2	17	86	12½	12	10	13½	2	17	19
108½	21	20½	12	14	3	18	97½	17	15½	11	14	2	18	89½	13	12½	10	14	2	18	20
112	21	20½	13	14½	3	19	101	17	15½	12	14½	2	19	93	13	12½	11	14½	2	19	21
114½	21	20½	13	15	3	20	104	17½	15½	12	15	2	20	95½	13	12½	11	15	2	20	22
117½	21½	20½	13	15½	3	21	106½	17½	15½	12	15½	2	21	98½	13½	12½	11	15½	2	21	23
120	21½	20½	13	16	3	22	109	17½	15½	12	16	2	22	101	13½	12½	11	16	2	22	24
123½	22	21	13	16½	3	23	112½	18	16	12	16½	2	23	104½	14	13	11	16½	2	23	25
126	22	21	13	17	3	24	115	18	16	12	17	2	24	107	14	13	11	17	2	24	26
128½	22	21	13	17½	3	25	117½	18	16	12	17½	2	25	109½	14	13	11	17½	2	25	27
131½	22½	21	13	18	3	26	120½	18½	16	12	18	2	26	112½	14½	13	11	18	2	26	28
134	22½	21	13	18½	3	27	128	18½	16	12	18½	2	27	115	14½	13	11	18½	2	27	29
137½	23	21½	13	19	3	28	126½	19	16½	12	19	2	28	118½	15	13½	11	19	2	28	30
140	23	21½	14	19½	3	28	129	19	16½	13	19½	2	28	121	15	13½	12	19½	2	28	31
142½	23	21½	14	20	3	29	131½	19	16½	13	20	2	29	123½	15	13½	12	20	2	29	32
145½	23½	21½	14	20½	3	30	134½	19½	16½	13	20½	2	30	126	15	13½	12	20½	2	30	33
148	23½	21½	14	21	3	31	137	19½	16½	13	21	2	31	129	15½	13½	12	21	2	31	34
151½	24	22	14	21½	3	32	140	19½	17	13	21½	2	32	132	15½	14	12	21½	2	32	35
154	24	22	14	22	3	33	142	19½	17	13	22	2	33	134½	15½	14	12	22	2	33	36

Heavy Soils—continued.

4-Course							5-Course							6-Course							RENT, including Rates, Taxes, and Tithe
PRODUCE — Average Annual per acre	Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Int. on Capital, Farmer's Profit	PRODUCE — Average Annual per acre	Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Int. on Capital, Farmer's Profit	PRODUCE — Average Annual per acre	Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Int. on Capital, Farmer's Profit	
	Per acre							Per acre							Per acre						Per acre
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
156½	24	22	14	22½	3	34	145	19½	17	13	22½	2	34	137	15½	14	12	22½	2	34	37
159½	24½	22	14	23	3	35	147½	19½	17	13	23	2	35	139½	15½	14	12	23	2	35	38
162	24½	22	14	23½	3	36	150	19½	17	13	23½	2	36	142	15½	14	12	23½	2	36	39
164½	25	22½	14	24	3	36	152½	20	17½	13	24	2	36	144½	16	14½	12	24	2	36	40
168	25	22½	15	24½	3	37	156	20	17½	14	24½	2	37	148	16	14½	13	24½	2	37	41
170½	25	22½	15	25	3	38	158½	20	17½	14	25	2	38	150½	16	14½	13	25	2	38	42
172½	25½	22½	15	25½	3	38	160½	20½	17½	14	25½	2	38	152½	16½	14½	13	25½	2	38	43
175	25½	22½	15	26	3	39	163	20½	17½	14	26	2	39	155	16½	14½	13	26	2	39	44
177	26	22½	15	26½	3	39	165	21	17½	14	26½	2	39	157	17	14½	13	26½	2	39	45
179½	26	22½	15	27	3	40	167½	21	17½	14	27	2	40	159½	17	14½	13	27	2	40	46
181	26	22½	15	27½	3	40	169	21	17½	14	27½	2	40	161	17	14½	13	27½	2	40	47
184	26½	22½	15	28	3	41	172	21½	17½	14	28	2	41	164	17½	14½	13	28	2	41	48
186½	26½	22½	15	28½	3	42	174½	21½	17½	14	28½	2	42	166½	17½	14½	13	28½	2	42	49
189	27	23	15	29	3	42	177	22	18	14	29	2	42	169	18	15	13	29	2	42	50
193½	27	23	16	29½	4	43	181½	22	18	15	29½	3	43	173½	18	15	14	29½	3	43	51
197	28	23	16	30	4	44	184	22	18	15	30	3	44	176	18	15	14	30	3	44	52
199½	28	24	16	30½	4	44	186½	23	18	15	30½	3	44	178½	19	15	14	30½	3	44	53
202	28	24	16	31	4	45	190	23	19	15	31	3	45	181	19	15	14	31	3	45	54
206½	29	25	16	31½	4	46	193½	24	19	15	31½	3	46	184	20	16	14	31	3	45	55
208	29	25	16	32	4	46	195	24	19	15	32	3	46	187	20	16	14	32	3	46	56
210½	29	25	16	32½	4	47	197½	24	19	15	32½	3	47	189½	20	16	14	32½	3	47	57
213	30	25	16	33	4	47	200	25	19	15	33	3	47	192	21	16	14	33	3	47	58
215½	30	25	16	33½	4	48	202½	25	19	15	33½	3	48	194½	21	16	14	33½	3	48	59
219	31	26	16	34	4	48	206	26	20	15	34	3	48	198	22	17	14	34	3	48	60
221½	31	26	17	34½	4	48	208½	26	20	16	34½	3	48	200½	22	17	15	34½	3	48	61
224	31	26	17	35	4	49	211	26	20	16	35	3	49	203	22	17	15	35	3	49	62
226½	32	26	17	35½	4	49	213½	27	20	16	35½	3	49	205½	23	17	15	35½	3	49	63
229	32	26	17	36	4	50	216	27	20	16	36	3	50	208	23	17	15	36	3	50	64
232½	33	27	17	36½	4	50	219½	28	21	16	36½	3	50	211½	24	18	15	36½	3	50	65

234	33	27	17	37	4	50	221	28	21	16	37	3	50	213	24	18	15	37	3	50	66
236½	33	27	17	37½	4	51	223½	28	21	16	37½	3	51	215½	24	18	15	37½	3	51	67
239	34	27	17	38	4	51	226	29	21	16	38	3	51	218	25	18	15	38	3	51	68
241½	34	27	17	38½	4	52	228½	29	21	16	38½	3	52	220½	25	18	15	38½	3	52	69
245	35	28	17	39	4	52	232	30	22	16	39	3	52	224	26	19	15	39	3	52	70
247½	35	28	18	39½	4	52	234½	30	22	17	39½	3	52	226½	26	19	16	39½	3	52	71
251	36	28	18	40	4	53	238	31	22	17	40	3	53	229	26	19	16	40	3	53	72
252½	36	28	18	40½	4	53	239½	31	22	17	40½	3	53	231½	27	19	16	40½	3	53	73
255	36	28	18	41	4	54	242	31	22	17	41	3	54	234	27	19	16	41	3	54	74
258½	37	29	18	41½	4	54	246½	32	23	17	41½	3	54	237½	28	20	16	41½	3	54	75
260	37	29	18	42	4	54	247	32	23	17	42	3	54	239	28	20	16	42	3	54	76
262½	37	29	18	42½	4	55	249½	32	23	17	42½	3	55	241½	28	20	16	42½	3	55	77
265	38	29	18	43	4	55	252	33	23	17	43	3	55	244	29	20	16	43	3	55	78
267½	38	29	18	43½	4	56	254½	33	23	17	43½	3	56	246½	29	20	16	43½	3	56	79
271	39	30	18	44	4	56	258	34	24	17	44	3	56	250	30	21	16	44	3	56	80
273½	39	30	19	44½	4	56	260½	34	24	18	44½	3	56	252½	30	21	17	44½	3	56	81
275	39	30	19	45	4	56	262	34	24	18	45	3	56	254	30	21	17	45	3	56	82
277½	40	30	19	45½	4	56	264½	35	24	18	45½	3	56	256½	31	21	17	45½	3	56	83
279	40	30	19	46	4	56	266	35	24	18	46	3	56	258	31	21	17	46	3	56	84
282½	41	31	19	46½	4	56	269½	36	25	18	46½	3	56	261½	32	22	17	46½	3	56	85
285	41	31	19	47	4	57	272	36	25	18	47	3	57	264	32	22	17	47	3	57	86
286½	41	31	19	47½	4	57	273½	36	25	18	47½	3	57	265½	32	22	17	47½	3	57	87
289	42	31	19	48	4	57	276	37	25	18	48	3	57	268	33	22	17	48	3	57	88
290½	42	31	19	48½	4	57	277½	37	25	18	48½	3	57	269½	33	22	17	48½	3	57	89
294	43	32	19	49	4	57	281	38	26	18	49	3	57	273	34	23	17	49	3	57	90
299½	44	32	20	49½	5	58	299½	44	32	20	49½	5	58	299½	44	32	20	49½	5	58	91
302	44	33	20	50	5	58	302	44	33	20	50	5	58	302	44	33	20	50	5	58	92
304	44½	33	20	50½	5	58	304	44½	33	20	50½	5	58	304	44½	33	20	50½	5	58	93
305	44½	33	20	51	5	58	305	44½	33	20	51	5	58	305	44½	33	20	51	5	58	94
308	45	33	20	51½	5	59	308	45	33	20	51½	5	59	308	45	33	20	51½	5	59	95
311	45	34	20	52	5	59	311	45	34	20	52	5	59	311	45	34	20	52	5	59	96
313	45½	34	20	52½	5	59	313	45½	34	20	52½	5	59	313	45½	34	20	52½	5	59	97
315	46	34	20	53	5	59	315	46	34	20	53	5	59	315	46	34	20	53	5	59	98
318	46½	34	20	53½	5	60	318	46½	34	20	53½	5	60	318	46½	34	20	53½	5	60	99
321	47	35	20	54	5	60	321	47	35	20	54	5	60	321	47	35	20	54	5	60	100
322	49	36	21	55	5	61	322	49	36	21	55	5	61	332	49	36	21	55	5	61	105
343	51	37	22	56	5	62	343	51	37	22	56	5	62	343	51	37	22	56	5	62	110
354	53	38	23	57	5	63	354	53	38	23	57	5	63	354	53	38	23	57	5	63	115
365	55	39	24	58	5	64	365	55	39	24	58	5	64	365	55	39	24	58	5	64	120
376	57	40	25	59	5	65	376	57	40	25	59	5	65	376	57	40	25	59	5	65	125
387	59	41	26	60	5	66	387	59	41	26	60	5	66	387	59	41	26	60	5	66	130
398	61	42	27	61	5	67	398	61	42	27	61	5	67	398	61	42	27	61	5	67	135
409	63	43	28	62	5	68	409	63	43	28	62	5	68	409	63	43	28	62	5	68	140
420	65	44	29	63	5	69	420	65	44	29	63	5	69	420	65	44	29	63	5	69	145
431	67	45	30	64	5	70	431	67	45	30	64	5	70	431	67	45	30	64	5	70	150
442	69	46	31	65	5	71	442	69	46	31	65	5	71	442	69	46	31	65	5	71	155
453	71	47	32	66	5	72	453	71	47	32	66	5	72	453	71	47	32	66	5	72	160

Mixed Soils.

4-Course							5-Course							6-Course							RENT, including Rates, Taxes, and Tithe
PRODUCE — Average Annual per acre	Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Interest on Capital, Farmer's Profit	PRODUCE — Average Annual per acre	Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Interest on Capital, Farmer's Profit	PRODUCE — Average Annual per acre	Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Interest on Capital, Farmer's Profit	
	Per acre							Per acre							Per acre						Per acre
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
71½	18	15½	12	8	4	6	62½	15	11½	11	8	3	6	53½	11	8½	10	8	2	6	8
74	18	15½	12	8½	4	7	65	15	11½	11	8½	3	7	56	11	8½	10	8½	2	7	9
77½	18½	16	12	9	4	8	68½	15½	12	11	9	3	8	59	11	9	10	9	2	8	10
80	18½	16	12	9½	4	9	71	15½	12	11	9½	3	9	62	11½	9	10	9½	2	9	11
83½	19	16½	12	10	4	10	74	15½	12½	11	10	3	10	65	11½	9½	10	10	2	10	12
86½	19	17	12	10½	4	11	77½	16	13	11	10½	3	11	68	11½	10	10	10½	2	11	13
89½	19½	17	12	11	4	12	80	16	13	11	11	3	12	70½	11½	10	10	11	2	12	14
93	20	17½	12	11½	4	13	83½	16½	13½	11	11½	3	13	74	12	10½	10	11½	2	13	15
95½	20	17½	12	12	4	14	86	16½	13½	11	12	3	14	76½	12	10½	10	12	2	14	16
98	20	17½	12	12½	4	15	88½	16½	13½	11	12½	3	15	79	12	10½	10	12½	2	15	17
101	20½	17½	12	13	4	16	91	16½	13½	11	13	3	16	82	12½	10½	10	13	2	16	18
103½	20½	17½	12	13½	4	17	93½	16½	13½	11	13½	3	17	84½	12½	10½	10	13½	2	17	19
107	21	18	12	14	4	18	97	17	14	11	14	3	18	88	13	11	10	14	2	18	20
110½	21	18	13	14½	4	19	100½	17	14	12	14½	3	19	91½	13	11	11	14½	2	19	21
113	21	18	13	15	4	20	103½	17½	14	12	15	3	20	94	13	11	11	15	2	20	22
116	21½	18	13	15½	4	21	106	17½	14	12	15½	3	21	97	13½	11	11	15½	2	21	23
118½	21½	18	13	16	4	22	108½	17½	14	12	16	3	22	98½	13½	11	11	16	2	22	24
122	22	18½	13	16½	4	23	112	18	14½	12	16½	3	23	103	14	11½	11	16½	2	23	25
124½	22	18½	13	17	4	24	114½	18	14½	12	17	3	24	105½	14	11½	11	17	2	24	26
127	22	18½	13	17½	4	25	117	18	14½	12	17½	3	25	108	14	11½	11	17½	2	25	27
130	22½	18½	13	18	5	26	120	18½	14½	12	18	3	26	111	14½	11½	11	18	2	26	28
132½	22½	18½	13	18½	4	27	122½	18½	14½	12	18½	3	27	113½	14½	11½	11	18½	2	27	29
136	23	19	13	19	4	28	126	19	15	12	19	3	28	117	15	12	11	19	2	28	30
138½	23	19	14	19½	4	28	128½	19	15	13	19½	3	28	119½	15	12	12	19½	2	28	31
141	23	19	14	20	4	29	131	19	15	13	20	3	29	122	15	12	12	20	2	29	32
144	23½	19	14	20½	4	30	134	19½	15	13	20½	3	30	124½	15	12	12	20½	2	30	33
146½	23½	19	14	21	4	31	136½	19½	15	13	21	3	31	127½	15½	12	12	21	2	31	34
150	24	19½	14	21½	4	32	139½	19½	15½	13	21½	3	32	130½	15½	12½	12	21½	2	32	35
152½	24	19½	14	22	4	33	142	19½	15½	13	22	3	33	133	15½	12½	12	22	2	33	36

155	24	19½	14	22½	4	34	144½	19½	15½	13	22½	3	34	135½	15½	12½	12	22½	2	34	37
158	24½	19½	14	23	4	35	147	19½	15½	13	23	3	35	138	15½	12½	12	23	2	35	38
160½	24½	19½	14	23½	4	36	149½	19½	15½	13	23½	3	36	140½	15½	12½	12	23½	2	36	39
163	25	20	14	24	4	36	152	20	16	13	24	3	36	143	16	13	12	24	2	36	40
166½	25	20	15	24½	4	37	155½	20	16	14	24½	3	37	146½	16	13	13	24½	2	37	41
169	25	20	15	25	4	38	158	20	16	14	25	3	38	149	16	13	13	25	2	38	42
171	25½	20	15	25½	4	38	160	20½	16	14	25½	3	38	151	16½	13	13	25½	2	38	43
173½	25½	20	15	26	4	39	162½	20½	16	14	26	3	39	153½	16½	13	13	26	2	39	44
175½	26	20	15	26½	4	39	164½	21	16	14	26½	3	39	155½	17	13	13	26½	2	39	45
178	26	20	15	27	4	40	167	21	16	14	27	3	40	158	17	13	13	27	2	40	46
179½	26	20	15	27½	4	40	168½	21	16	14	27½	3	40	159½	17	13	13	27½	2	40	47
182½	26½	20	15	28	4	41	171½	21½	16	14	28	3	41	162½	17½	13	13	28	2	41	48
184	26½	20	15	28½	4	41	174	21½	16	14	28½	3	42	165	17½	13	13	28½	2	42	49
188	27	21	15	29	4	42	176	22	16	14	29	3	42	167	18	13	13	29	2	42	50
192½	27	21	16	29½	5	43	181½	22	17	15	29½	4	43	172½	18	14	14	29½	3	43	51
196	28	21	16	30	5	44	184	23	17	15	30	4	43	175	18	14	14	30	3	44	52
197½	28	21	16	30½	5	44	186½	23	17	15	30½	4	44	177½	19	14	14	30½	3	44	53
200	28	21	16	31	5	45	189	23	17	15	31	4	45	180	19	14	14	31	3	45	54
204½	29	22	16	31½	5	46	193½	24	18	15	31½	4	46	184	20	15	14	31	3	46	55
206	29	22	16	32	5	46	195	24	18	15	32	4	46	186	20	15	14	32	3	46	56
208½	29	22	16	32½	5	47	197½	24	18	15	32½	4	47	188½	20	15	14	32½	3	47	57
211	30	22	16	33	5	47	200	25	18	15	33	4	47	191	21	15	14	33	3	47	58
213½	30	22	16	33½	5	48	202½	25	18	15	33½	4	48	193½	21	15	14	33½	3	48	59
217	31	23	16	34	5	48	206	26	19	15	34	4	48	197	22	16	14	34	3	48	60
219½	31	23	17	34½	5	48	208½	26	19	16	34½	4	48	199½	22	16	15	34½	3	48	61
222	31	23	17	35	5	49	211	26	19	16	35	4	49	202	22	16	15	35	3	49	62
224½	32	23	17	35½	5	49	213½	27	19	16	35½	4	49	204½	23	16	15	35½	3	49	63
227	32	23	17	36	5	50	216	27	19	16	36	4	50	208	23	16	15	36	3	50	64
230½	33	24	17	36½	5	50	219½	28	20	16	36½	4	50	210½	24	17	15	36½	3	50	65
232	33	24	17	37	5	50	221	28	20	16	37	4	50	212	24	17	15	37	3	50	66
234½	33	24	17	37½	5	51	223½	28	20	16	37½	4	51	214½	24	17	15	37½	3	51	67
237	34	24	17	38	5	51	226	29	20	16	38	4	51	217	25	17	15	38	3	51	68
239½	34	24	17	38½	5	52	228½	29	20	16	38½	4	52	219½	25	17	15	38½	3	52	69
243	35	25	17	39	5	52	232	30	21	16	39	4	52	223	26	18	15	39	3	52	70
245½	35	25	18	39½	5	52	234½	30	21	17	39½	4	52	225½	26	18	16	39½	3	52	71
249	36	25	18	40	5	53	238	31	21	17	40	4	53	228	26	18	16	40	3	53	72
250½	36	25	18	40½	5	53	239½	31	21	17	40½	4	53	230½	27	18	16	40½	3	53	73
253	36	25	18	41	5	54	242	31	21	17	41	4	54	233	27	18	16	41	3	54	74
256½	37	26	18	41½	5	54	245½	32	22	17	41½	4	54	236½	28	19	16	41½	3	54	75
258	37	26	18	42	5	54	247	32	22	17	42	4	54	238	28	19	16	42	3	54	76
260½	37	26	18	42½	5	55	249½	32	22	17	42½	4	55	240½	28	19	16	42½	3	55	77
263	38	26	18	43	5	55	252	33	22	17	43	4	55	243	29	19	16	43	3	55	78
265½	38	26	18	43½	5	56	254½	33	22	17	43½	4	56	245½	29	19	16	43½	3	56	79
269	39	27	18	44	5	56	258	34	23	17	44	4	56	249	30	20	16	44	3	56	80
271½	39	27	19	44½	5	56	260½	34	23	18	44½	4	56	251½	30	20	17	44½	3	56	81
273	39	27	19	45	5	56	262	34	23	18	45	4	56	253	30	20	17	45	3	56	82
275½	40	27	19	45½	5	56	264½	35	23	18	45½	4	56	255½	31	20	17	45½	3	56	83

Mixed Soils—continued.

4-Course							5-Course							6-Course							
Produce — Average Annual per acre	Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Interest on Capital, Farmer's Profit	Produce — Average Annual per acre	Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Interest on Capital, Farmer's Profit	Produce — Average Annual per acre	Manual Labour	Horse Labour	Seeds and Plants	Purchased Manure	Tradesmen	Risk, Interest on Capital, Farmer's Profit	Rent, including Rates, Taxes, and Tithe
	Per acre							Per acre							Per acre						Per acre
s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.	s.
278	40	28	19	46	5	56	266	35	23	18	46	4	56	257	31	20	17	46	3	56	84
280½	41	28	19	46½	5	56	269½	36	24	18	46½	4	56	260½	32	21	17	46½	3	56	85
283	41	28	19	47	5	57	272	36	24	18	47	4	57	263	32	21	17	47	3	57	86
284½	41	28	19	47½	5	57	273½	36	24	18	47½	4	57	264½	32	21	17	47½	3	57	87
287	42	28	19	48	5	57	276	37	24	18	48	4	57	267	33	21	17	48	3	57	88
288½	42	28	19	48½	5	57	277½	37	24	18	48½	4	57	268½	33	21	17	48½	3	57	89
292	43	29	19	49	5	57	281	38	25	18	49	4	57	272	34	22	17	49	3	57	90
298	44	29½	20	49½	6	58	298	44	29½	20	49½	6	58	298	44	29½	20	49½	6	58	91
300	44	30	20	50	6	58	300	44	30	20	50	6	58	300	44	30	20	50	6	58	92
302	44½	30	20	50½	6	58	302	44½	30	20	50½	6	58	302	44½	30	20	50½	6	58	93
303½	44½	30	20	51	6	58	303½	44½	30	20	51	6	58	303½	44½	30	20	51	6	58	94
306½	45	30	20	51½	6	59	306½	45	30	20	51½	6	59	306½	45	30	20	51½	6	59	95
309	45	31	20	52	6	59	309	45	31	20	52	6	59	309	45	31	20	52	6	59	96
311	45½	31	20	52½	6	59	311	45½	31	20	52½	6	59	311	45½	31	20	52½	6	59	97
313	46	31	20	53	6	59	313	46	31	20	53	6	59	313	46	31	20	53	6	59	98
316	46½	31	20	53½	6	60	316	46½	31	20	53½	6	60	316	46½	31	20	53½	6	60	99
319	47	32	20	54	6	60	319	47	32	20	54	6	60	319	47	32	20	54	6	60	100
330	49	33	21	55	6	61	330	49	33	21	55	6	61	330	49	33	21	55	6	61	105
341	51	34	22	56	6	62	341	51	34	22	56	6	62	341	51	34	22	56	6	62	110
352	53	35	23	57	6	63	352	53	35	23	57	6	63	352	53	35	23	57	6	63	115
363	55	36	24	58	6	64	363	55	36	24	58	6	64	363	55	36	24	58	6	64	120
374	57	37	25	59	6	65	374	57	37	25	59	6	65	374	57	37	25	59	6	65	125
385	59	38	26	60	6	66	385	59	38	26	60	6	66	385	59	38	26	60	6	66	130
396	61	39	27	61	6	67	396	61	39	27	61	6	67	396	61	39	27	61	6	67	135
407	63	40	28	62	6	68	407	63	40	28	62	6	68	407	63	40	28	62	6	68	140
418	65	41	29	63	6	69	418	65	41	29	63	6	69	418	65	41	29	63	6	69	145
429	67	42	30	64	6	70	429	67	42	30	64	6	70	429	67	42	30	64	6	70	150
440	69	43	31	65	6	71	440	69	43	31	65	6	71	440	69	43	31	65	6	71	155
451	71	44	32	66	6	72	451	71	44	32	66	6	72	451	71	44	32	66	6	72	160

It will be understood, of course, that there can be no settled scale of values, and that the chief use of these tables is to illustrate the principle on which to estimate, and give an idea of the immense range in the scale of values, which, however, is far from being fully exhibited in these schedules. The conditions of soil and climate are so variable that no fixed rules of husbandry would succeed in every district, under all circumstances; so that any figures that can be given will require to be altered to suit particular farms. Besides which, opinions will ever differ as to what can be got out of land. The produce, no doubt, bears a certain proportion to the goodness of the soil; but the farmer's skill, industry, and capital often effect far greater results than the difference observable between the natural fertility of good and bad land. Indeed, the amount of produce, where the same skill and industry are used, depends chiefly on the amount of capital that the farmer can employ. And the better the quality, or the higher the condition of the soil, the more capital is required for its working. Good land will bear and repay a greater application of both labour and manure, and therefore a more expensive system of culture than poor land; and land that is very productive, whether its fertility be natural or acquired, takes a proportionately greater capital to work it and to stock it.

In the case of hill grazings, the produce, rent, and expenses bear very different proportions to what they do on arable land; but the proportions vary here, too, with the nature and quality of the grazing, with the breed of sheep, and with the kind of flock, whether it is a breeding flock or a wether flock.

The rent is usually fixed on the number of sheep the grazing will carry, without respect to the acreage, and the amount per sheep depends, of course, mainly on the quality of sheep the grazing will make. It is the nature of the soil, the kinds and varieties of the grasses, and the conditions of climate and shelter, that determine the weight and quality of both sheep and wool; also the liability of the sheep to disease, and whether food will be abundant or scarce at the proper seasons. Fine hard and sound lea-ground is needed for summer grazing to put sheep into the highest condition; but it cannot winter them. Moss land makes but a light sheep, yet it is invaluable for winter and spring food, especially if it lies at a low altitude, so that the sheep can easily reach it in stormy weather. Strong grassy or bog land alone of itself will grow good sheep, and keep them in condition throughout the year. A good mixture, however, of all these soils with their different grasses is best; and on such a grazing there are always fewer barren ewes and fewer deaths in the flock, the produce is greater and fetches a relatively higher price, the expense of wintering is less, and fewer lambs are required to keep up the stock than on any other kind of hill pasture.

A lowland grazing of a fairly good character may be taken in illustration. It will carry a breeding flock of, say, 1,200 Cheviot sheep, besides affording grass and hay for the shepherd's cows. Of these 1,200 sheep, one-fifth, or 240, would be ewe-hoggs, and the remaining 960 would be breeding ewes of four different ages in equal numbers of 240 each—say, 900 ewes and lambs, and 60 eild or barren ewes. The ingoing valuation to such a grazing last year would be about 32*s.* for the ewe-hogg, 54*s.* 6*d.* for the ewe and lamb, and 40*s.* for the eild ewe; so that allowing a further sum of 60*l.* for rams, and 32*l.* 10*s.* for utensils, the total cost of stocking the grazing would amount to 3,049*l.*

Then as to the amount of annual sales and expenses on such a grazing. The sales, after making allowance for a mortality of 80 or 6·6 per cent., and for 240 top ewe lambs kept to make up the flock, would probably be 660 lambs, 160 draft ewes, 4,760 lbs. of wool, and 80 skins. The expenses would include two shepherds at 45*l.* each in money (besides keep of cow, potato ground, a quantity of coal, and free house—making the earnings of each average something like 25*s.* a week), with extra hands at lambing, dipping, clipping, haying, and other times. Then there is the cost of sheep-dip; the cost of extra food for wintering the rams; the expenses of cleansing out drains and of keeping up fences and buildings; market expenses and commissions, parish rates, interest on capital, and farmer's profit.

At last year's prices the detailed amount of sales and expenses would respectively be—

SALES.[1]

	£	s.	d.	£	s.	d.
170 tods of wool, at 35*s.*	297	10	0			
80 skins, at 4*s.*	16	0	0			
140 draft ewes, at 35*s.*	245	0	0			
20 second „ 25*s.*	25	0	0			
320 top wether lambs, at 15*s.*	240	0	0			
160 second „ „ 11*s.*	88	0	0			
120 second ewe lambs, at 20*s.*	120	0	0			
60 small ewe and wether lambs, at 8*s.*	24	0	0	1,055	10	0

EXPENSES.

	£	s.	d.	£	s.	d.
Shepherds' wages	90	0	0			
Extra hands	20	0	0			
Sheep-dip	7	0	0			
Wintering rams	10	0	0			
Cleaning 1,500 rods of drains	6	5	0			
Repairing fences and buildings	6	0	0			
Market expenses and commissions	20	0	0			
Parish rates	11	8	0			
Interest on 3,049*l.* at 5 per cent.	152	9	0			
Farmer's profit, at 5 per cent., on capital	152	9	0			
	475	11	0	475	11	0
Rent afforded by the grazing				579	19	0

This brings out a rent of nearly 9*s.* 8*d.* per sheep, which is pretty near the present average rental of grazings in the south, but it would be too high an average for Highland grazings, where the expense of wintering is often very considerable, and the produce brought to market is less.

These examples of arable farms and hill grazings will be sufficient to illustrate the method to be observed in valuing any other class of agricultural land.

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[1] Scott's *Farm Valuer*, published by Messrs. Longman & Co.

CHAPTER III.

DEER FORESTS AND GROUSE MOORS, ETC.

NOT very many years ago the value of deer forests, grouse moors, and other shootings was not estimated in money at all. Now they are accounted a most valuable description of property, and in many counties yield a considerable proportion of the rentals. In Inverness-shire alone the rents of shootings amount to something near or over 100,000*l.* per annum.

The value of shootings has increased so much within recent years that in moorland districts game has to a large and increasing extent been supplanting sheep, the former paying higher rents than the latter. Many wild and barren tracts, formerly considered valueless, are now yielding large rents as grouse moors, and for any other purpose they would still be unremunerative. The rents derived from deer forests and grouse moors may be regarded as less permanent than those obtained for pastoral purposes, but they are at any rate the most valuable that can be got for the lands put to that use, and it is only fair to assume that the rents in question represent the amount of capital these estates would bring in the open market.

The wonderful increase which has thus taken place in the value of these moorlands was, no doubt, partly owing to the great rise of late years in the price of wool and mutton, but it was mainly caused by the unprecedented demand for shootings, arising out of the wealth of those who, but for the flourishing condition of commerce in this country, would be unable to afford the luxury. How far a period of general depression like the present may affect these rentals yet remains to be seen. There can be no doubt that in the majority of cases the rents are very high for the sport obtained. Reckoned by the actual amount of game shot, the value realised for the money expended does not certainly make the investment a profitable one in a monetary point of view; but then those who rent deer forests and grouse moors usually do so more for the recreation and personal enjoyment which the shootings afford, than the amount of money to be derived therefrom.

Many people are of opinion that these rents are of too vague a character for the value to be ascertained; and no doubt the valuation of shootings becomes a difficult matter if not to be looked at simply with reference to the result or gain from the quantity of game killed. Sometimes, however, an estimate can be generally made by reference to the probable gain, and an estimate founded on such cases. These shootings, also, are often the subject of public letting, by which the letting value is clearly made known and the price fixed at what the public will give for them.

In valuing a deer forest, it is usual to reckon by the number of deer which are allowed to be shot upon it in the season, the tenant as a rule being limited in this respect. Thus, a forest where only fifty head of deer can be killed in a season will probably yield a rent of 1,000*l.*, which would be at the rate of 20*l.* for every head of deer stalked, the tenant also paying all expenses in connection with the forest. The proportions vary very considerably, however, for different forests, and at the present time the above figures are perhaps about the lowest—the price paid for stalking the same number or but few more deer—being sometimes as high as 3,000*l.* or 4,000*l.* In every case the rents paid are enormous. The highest is probably that of Glenstrathfarar, Inverness-shire, with a rental of 7,000*l.* per annum. The rents are said to have increased twenty times in value during as many years, and yet the demand has been so great that while fifty years ago there were only some five deer forests in Scotland there are now 100, or over, occupying, it is estimated, nearly 2,000,000 acres, or one-tenth of the whole area of Scotland.

These deer forests have often been formed at great expense, and with proper management they may be looked to for more certain returns than are to be yielded by other shootings that have had no expenditure of the kind made upon them. If the forest is well stocked with deer, and allowing that for every head of deer the same land would carry from four to six sheep, it will generally give a rental of from 30 to 100 per cent. more in amount than it would pay if devoted to sheep-grazing purposes.

Scotland is pre-eminently the country of the red grouse, but he does well in Wales, and on the moors of Yorkshire, Derbyshire, and North Staffordshire. Further south in England, however, he does not seem inclined to settle.

The rents of grouse moors have of late years risen so enormously that no amount of shooting, with birds ever so plentiful, can be made to pay expenses. A moor of 300*l.* yearly rent, would require to yield, say 3,600 birds at half-a-crown each, in order to pay rent and expenses—reckoning the latter to be half as much as the rental; but the extent of heather which can now be obtained for the rent named, would not admit of killing one-third that number of birds. The grouse rental for England and Scotland has been recently estimated at 250,000*l.*, and the consumption of grouse in both countries at 750,000 birds, which at the net price of 2*s.* 6*d.* each represents a sum of 93,750*l.* Allowing that black game and hares make up the round sum of 100,000*l.*, it still leaves a deficiency of three-fifths of the rental indicated, making it clear that each sportsman must pay on the average 4*s.* per bird more than he receives to make up the amount of his rent. The incidental expenses have, of course, to be added, and at one-half as much as the rental, which is perhaps the lowest possible estimate, it brings the cost up to 10*s.*

for each bird killed. It is well enough known, however, that the price paid for the pleasure of grouse-shooting is often double that sum; and were it not for an occasional season of disease, grouse moors would be much more valuable than they are at present.

Few if any of the moorlands devoted to the purpose are yet fully developed as grouse grounds, or their economy so well understood as it ought to be. The number of grouse an acre of heather will breed and feed, and what percentage of them should be shot, so as to leave on the ground a sufficient stock for breeding purposes, are questions often asked but not easily answered. There are not a few moors of about 20,000 acres, the rents varying from 300*l.* to 700*l.* per annum, that yield on a rough calculation something like 500 brace of grouse, or at the most one bird for every seventeen acres, which may be taken as about the average number killed on ordinary moors per acre; but, of course, many smaller moors yield a higher proportion of birds.

The only way to estimate these rents is to compare the shootings with others of the same class; or, if that cannot be done, calculate from by-gone rents, according to present demand and current prices, and having regard to the stock of birds on the ground and the nature of the shooting.

Grouse moors and deer forests are the chief shootings which yield a distinctive rent; but partridge, pheasant, and mixed shootings on low country grounds, are also separately rented in many cases.

These latter vary very much in value, according to local circumstances. The stock of birds on the ground, and the facilities of keeping that stock together—such as cover and food—are, of course, the first things to be looked at; but the position of the lands, their proximity to thickly peopled and wealthy centres, and the like, affect the market value in a great degree.

The rents of partridge shootings range perhaps from 6*d.* to 1*s.* 9*d.* per acre. In any English county celebrated for its partridges, the shootings let readily at rents from 1*s.* 3*d.* to 1*s.* 9*d.* per acre. In the western counties, the rents are something like 1*s.* an acre all round; while in Wales good partridge-shooting over large tracts, can be rented for 10*d.* per acre, and often very tolerable shooting may be obtained at about 6*d.* per acre.

Mixed shootings on arable land, with a fairly good stock of partridges, pheasants, hares, &c., let at 2*s.* or 3*s.* per acre, and upwards where the extent to be shot over is not too great. On land which has very little game even, the right of shooting will always produce a rent, and not unfrequently the farmer in occupation will pay well for the privilege if it be only granted him. There is scarcely any inclosed land in this country, indeed, that will not yield at least 1*s.* per acre of game rental in addition to what it is worth for agriculture. One union in the south of England fixes the rateable value of game at 6*d.* per acre on inclosed arable and grass land, at 2*s.* per acre in coppices, and 3*d.* per acre on heath lands and plantations; but these rates, it may safely be assumed, are much below the actual rentals.

A distinction must be made in these shootings between natural game, as it were, and that which is reared artificially, as pheasants in preserves. The former entails little or no expense compared with the other, in which the cost of rearing the birds is generally not less than 4*s.* or 5*s.* each, in many cases a great deal more, and then usually not more than two-thirds of the number reared are shot every season, so that the expenses per bird killed come to be something very considerable, and that over and above the rent of the shooting. On the whole, however, the most expensive of these, looking at the returns, are cheap luxuries in comparison with a grouse moor shooting.

CHAPTER IV.

MINERALS.

MINERALS of any kind are an important addition to an estate. Even if coal, iron, and the more precious metals are entirely absent, there may be others, such as coprolites, fire-clays, oil-shales, and many more that will yield a fertile source of revenue, and there may be marls, brick and tile clays, and building-stone, which if less directly profitable, may be very serviceable in the improvement and maintenance of the property within itself. But wherever mineral wealth is known to exist, it sooner or later becomes more or less a marketable commodity, and once the country around these spots is opened up and becomes accessible by railway and other means of transport, we find that land which was formerly worth no more perhaps than 5*s.* per acre surface rent will often rise in value to 1,500*l.* an acre, or more, underground. There is little doubt, too, but there is much mineral wealth of one kind or another in the country lying undeveloped, and that more particularly in some of our waste lands, which contain very often not only the means of improvement within themselves, but abound in tin, iron, granite, marble, slate or other products that might in many cases be made to yield a greater annual revenue than the sum to be realised from the fee-simple of the agricultural land itself. No subject, indeed, is more deserving of research than the mineral riches of our soils, for where the geological strata of the country are so varied as in our country, and the progress of invention and application of science to the arts so rapid as at the present day, new products are continually being utilised, and others as steadily increasing in value.

The greater part of our country's wealth and population is seen to follow and centre in the most productive mineral districts; and the importance to the country in general of this class of wealth and its development is testified by the rapid progress which has been made of late years by some of our largest cities, such as Glasgow, Birmingham, and Newcastle, whose prosperity is mainly due to the mineral wealth which surrounds them.

Minerals may be divided into several classes, each of which requires to be treated differently, and the estimation of which requires a perfect knowledge of the particular locality, of the strata, dip, &c., as well as of former workings of the same kind in the same formation. The mineral value of an estate may arise from (1) superficial clays, sands, gravel, peat, marls, or coprolite deposits; or (2) from sandstones, limestones, coal, ironstones, granites, and greenstones; or (3) from the occurrence of metalliferous veins.

The discovery of *coprolites* in the greensand and crag formations has added much to the value of these soils, not only in places where coprolite is already known to exist, but in other parts on the chance of its being met with. A good deposit of this substance, when it can be worked at a moderate cost, has sometimes the effect of more than doubling the value of the land where it is found. As much as 100*l.* and even 200*l.* an acre is paid by contractors for the privilege of extracting the coprolites, the price varying, of course, with the cost of 'getting,' the depth of the vein from the surface, its thickness, continuity, and extent, the richness of the coprolite in phosphate of lime, and its freedom from intermixture with sand and gravel, as well as the situation and the facilities for transport and carriage. The depths of the veins range from four feet to twenty feet and more, but they are seldom worked beyond the latter depth. If not more than twelve or fifteen feet from the surface and the coprolite is of good quality, from 150*l.* to 200*l.* is not uncommonly paid for the right to excavate, the contractor binding himself so to restore the land surface as to leave it in a better condition for agriculture than before. The yield of coprolites is usually from 150 to 400 tons per acre. The amount of coprolite diggings in this country, we learn from Mr. Hunt's 'Mineral Statistics' for 1877, was 69,000 tons, of which 10,000 tons were from the crag in Suffolk, 55,000 tons from the upper greensand in Cambridgeshire, and 4,000 tons from the lower greensand in Bedfordshire, yielding an aggregate value of 200,000*l.* But this supply is far from meeting the demand, and our manure manufacturers are chiefly dependent on foreign countries for their supply of coprolites, no less a quantity than 700,000*l.* worth being annually imported from America alone. The value of coprolite-yielding land is therefore likely to become greater still, and most assuredly will this be the case if the result of the Aberdeen experiments is corroborated, and the coprolites are found to be equally as effective for manure when merely ground or crushed, as when dissolved, which will greatly cheapen their use, so that we may expect to see a still greater demand for them.

The extended working of *fire-clays*, like *mineral manures* and *oil-shales*, has also of late years become a great source of wealth to land-owners, and this value has as often arisen in quarters where it was little suspected. The returns of fire-clay and potter's-clay, together with the finer varieties of china-stone and porcelain-clay, which latter substance is furnished by granite and the allied rocks, amounted in 1877 to 2,961,155 tons, representing a value of 592,231*l.* This is over and above the commoner clays used for brick and tile making, the quantity worked of which must be something enormous.

Sand and *gravel* beds may likewise be of considerable value if in a situation where there is a demand for them. The gravel may be fitted for roads or for ballast, &c., and the sand for mortar, for moulding purposes, or for glass-making. Their value would depend upon the quality and quantity of either, the extent of the beds, as well as the demand, the competition, the price obtainable, the cost of getting, the purpose for which the sand or gravel was most suitable, and whether the sand, for example, had any extraordinary value in consequence of peculiar fineness, colour, sharpness, or other peculiarity which would create a special demand for it.

Building stone, *flagstones*, *slate*, *limestones*, and *chalk*, &c., are all raised by quarrying or open-working, and with the exception of a few of the building and ornamental stones, such as granites, basalts, greenstones and porphyries, they are all stratified rocks—sandstones, marble, flagstones, slates, and limestones—and as such are sought for along their outcrops, or where they come to the surface, the unstratified being taken from hill-sides and cliffs, or from intersecting dykes. In workings of this kind, whether in stratified or unstratified rocks, the points to be considered in making a valuation are the nature of the rock, the cost of raising it, its durability and suitableness for the purpose in view, the demand that exists, or is likely to exist, for the same, if the supply is sufficient to warrant the preliminary outlay required, and if the facilities for transport are sufficient, &c.

Salt, *coal*, *oil-shales*, and *ironstones*, &c., are also stratified rocks, but, unlike the above, are generally worked by means of shafts or pits, sunk perpendicularly from the surface. The preliminary expenses incurred in erecting machinery for pumping water and raising the minerals, and in providing for ventilation, are consequently very much greater, and so in proportion is the necessity for a thorough examination of the ground before commencing to work it.

However much or little may be the mineral value of an estate, and no matter from what source it arises, a proper idea of it can only be arrived at by a competent survey and a careful estimate. Such a survey would obviate many mistakes in buying and selling land, and the increasing value of minerals of every kind renders it of the first necessity and importance that in dealing with landed property greater attention should be paid to this branch of its value. The surface value and the mineral value of the land should be respectively and separately taken into account in selling or in purchasing an estate, and no reasonable expense should be spared to ascertain this in the best way possible.

The mineral value of an estate is not difficult to ascertain when it relates only to quarries and open workings. If the quantity is unlimited, the annual output will be the basis to calculate upon ; if the quantity is limited, then the quantity and the probable time the current demand may take to exhaust it will have to be jointly considered. The annual or rental value may be found by taking the net annual produce and deducting therefrom the total working expenses, together with interest on capital, and rates and taxes, &c. The difference will represent the clear annual rent that could be obtained, and may be reduced to a fair royalty per yard, or per ton. Production is in all cases the criterion of the rent or royalty that can be paid; but in the cases of different minerals the amount generally varies from $\frac{1}{4}$ to $\frac{1}{10}$ or $\frac{1}{12}$ of the gross value, and in the case of some brick-fields in the country, to our knowledge, the royalty is as low as 6*d.* in the £, or only $\frac{1}{40}$ of the gross value.

The purchase value of mineral property may be taken at from twelve to sixteen years' rent or annual revenue, or more than a half less than the years to be given for the purchase of agricultural land. The chief consideration is the continuance of the present reputed rental value of the minerals. But there is a certain risk here, too, and an estimate founded on this method is not only indefinite and uncertain, but to some extent it is fallacious. Unlike the rental of land, the revenue that is derived from mines is liable to the greatest fluctuation, and even to be terminated altogether in an abrupt manner. Then the questions arise: Is the rent or royalty, on which the purchase value is so calculated, all that it might be or should be? Is the facility and capacity for carrying on a business of that kind in that place fully developed? It is evident that unless these and similar other questions can be answered in the affirmative, the data on which the price is fixed will otherwise be very misleading. Yet, if the annual value is correctly fixed, it affords the true data for estimating the purchase value, and any proposed extension of the workings should be dealt with as an improvement of the property.

CHAPTER V.

WOODS.

The timber and underwoods on an estate often have to be valued at every stage of their growth, whether they are fit to cut at the time or not, and many times when not yet wanted for that purpose; for when an estate changes hands the transfer value of this interest has to be ascertained in addition to the price of the land; and some land-owners deem it useful and necessary, as a matter of satisfaction to themselves, to know at frequent intervals the exact value of their woodlands, and whether they are growing in value, or are deteriorating in worth by over-cutting, over-maturity, or any other of the manifold causes which they are liable to suffer from.

For this purpose, woods may be divided into four classes—(1) *full-grown trees;* (2) *half-grown timber;* (3) *young plantations;* (4) *underwoods*—and their valuation treated of in that order.

(1) *Full-grown trees.*—The best way to ascertain their value is to find the cubic contents, and then fix the price according to the selling rate of timber, the kind of trees, their size, the situation the timber stands in as regards roads and distance from markets, and the

cost of felling and converting the trees for market purposes. While this rule applies to full-grown timber, it is equally applicable, of course, to other trees when their present value in timber is required, if they are of a measurable size, *i.e.* not less than twenty-four inches in girth.

Some, however, value trees of this class by what is called 'viewing' the timber, or judging it by the eye alone. They first calculate the number of trees, and then estimate the average yield and value of each in timber, topwood, and also bark if that is saleable, taking, of course, the proportion of different kinds of trees if the plantation is a mixed one. This plan is all very well in its way, but it can seldom be quite accurate, even when the valuer has had the greatest local experience, for an average of a great number of trees can only be arrived at by taking their dimensions tree by tree; and what is true of the dimensions is also true of the values, as the prices put on some trees when estimated singly will often bring out a very different figure as the average from what it would be assumed at in the rough.

The value of any tree of a measurable size is therefore to be most correctly judged of by knowing its content. To this end, the girth should be taken in inches and the height in feet. The height is found by means of a long sliding rod or pole having the number of feet and half-feet marked on it, and the girth by means of a narrow tape or strap marked in inches. The latter should be taken at two or three parts of the tree if necessary, to get the mean girth, and for this purpose there should be a light ladder at hand to use if needed.

In every case the full girth of the tree must be diminished by an allowance for the bark. It is a very common practice to take this roughly at one inch deduction for every foot in girth, and to hold this allowance good for all sorts of trees except such as are very old and thick and rough in the bark, when a greater deduction is made. This, while tolerably correct for oak, alder, pine, Spanish chestnut, and some other trees, is more than should be deducted for others, such as ash, elm, beech, birch, and poplar, that are more thin in the bark; but the average thickness of the bark varies for the same kind of trees with their age, conditions and state of growth, and other circumstances. It will often be found that a deduction of one inch in every twelve of girth is more than sufficient for oak-trees even, and, of consequence, to apply this rough but ready rule indiscriminately to all trees, and under all conditions, will at times make a very excessive allowance for the bark. For trees in a growing state, a deduction of ¾ inch in every foot of girth in the case of those that are thick-barked, and ½ an inch in the case of those that are thin-barked, will generally be found sufficient; but if the trees are very old and scrubby and stunted in growth, the bark will be of greater thickness, and it may then be necessary to increase the deduction to one inch or more in the one case, and to ¾ inch or more in the other.

The true and full content of a round tree can be found very nearly by Dr. Hutton's rule, which is:—Multiply the square of $\frac{1}{5}$ the mean girth by twice the length.

Example.—Find the content in cubic feet of a tree 44 inches in girth, and 32 feet in length.

$$8{\cdot}8^2 \times \frac{64}{144} = 34{\cdot}41 \text{ cub. ft.}$$

But rough timber is never bought and sold by this rule, for it allows nothing for loss and waste in squaring the tree. In order to provide for that, another rule of measurement is adopted in practice, and it is this:—Multiply the square of the quarter girth by the length, and take the product for the volume.

If we work out the content of the same tree by this rule, the result will be found to be very different from that obtained by the other. Thus—

$$11^2 \times \frac{32}{144} = 26{\cdot}88 \text{ cub. ft.}$$

This is little more than three-fourths of the full content of the tree, showing as it does a loss of over 22 per cent.; and it is often urged against this rule that it allows more than is needed to make up the loss in squaring the timber. But it may be shown that this common rule gives a higher result than the tree can actually be hewn to. It assumes that the quarter-girth and the side of the inscribed square are equal, whereas, it is self-evident that the inscribed square is less than the circle. The greatest square a tree 44 inches in circumference can be hewn to is 9·9 inches, instead of

11 inches as is assumed by the common rule of the quarter-girth, and therefore the actual volume of squared timber in the tree is only

$$9{\cdot}9^2 \times \frac{32}{144} = 21{\cdot}76 \text{ cub. ft.}$$

or 5·08 cubic feet less than by the quarter-girth rule. The true squared content will, therefore, be fully 36 per cent. less than the full content of the unhewn tree. This great difference may very well be more than will cover the actual loss by squaring, if the slabs and chips are worth something more than the cost of hewing, and hence practice has adopted a rule which, although erroneous in itself, gives something between the two, and for general use is the most fair one as between buyer and seller.

But while the quarter-girth rule holds good in ordinary cases, it may very well happen that a buyer would not think his purchase a safe one if he reckoned on more than the net quantity of squared timber; and to enable the content of a tree to be readily got at by both methods, if necessary, the following table has been calculated. It gives the cubic feet of timber, per foot run, in trees measuring from 24 inches to 240 inches in girth, or the equivalent of 6 to 60 inches quarter-girth. In the use of the table all that is required in order to ascertain the quantity of timber in any tree, after having taken its girth and length by means of the strap and pole, is to look for the full girth in the first column, and then opposite to that stands the number which, multiplied by the length, will give the volume in cubic feet—the number in the second column to be multiplied by the length of the tree if the quarter-girth rule is adopted; but the number in the third column used if the true squared content is required.

Net circumference of tree, clear of bark	Quarter-girth content per foot run	True squared content per foot run	Net circumference of tree, clear of bark	Quarter-girth content per foot run	True squared content per foot run
Inches	Cub. ft.	Cub. ft.	Inches	Cub. ft.	Cub. ft.
24	·250	·202	58	1·459	1·181
25	·270	·219	59	1·510	1·222
26	·292	·237	60	1·562	1·265
27	·315	·256	61	1·612	1·308
28	·339	·275	62	1·666	1·350
29	·364	·295	63	1·721	1·394
30	·390	·315	64	1·776	1·440
31	·416	·337	65	1·833	1·485
32	·443	·360	66	1·890	1·530
33	·471	·383	67	1·946	1·577
34	·501	·405	68	2·005	1·625
35	·531	·430	69	2·064	1·656
36	·562	·455	70	2·125	1·721
37	·592	·480	71	2·187	1·771
38	·625	·506	72	2·250	1·822
39	·659	·534	73	2·310	1·874
40	·693	·562	74	2·374	1·926
41	·729	·591	75	2·439	1·976
42	·765	·619	76	2·505	2·030
43	·801	·649	77	2·572	2·085
44	·839	·680	78	2·640	2·140
45	·877	·712	79	2·706	2·193
46	·917	·743	80	2·775	2·250
47	·958	·776	81	2·845	2·307
48	1·000	·810	82	2·917	2·365
49	1·040	·844	83	2·989	2·421
50	1·083	·877	84	3·062	2·480
51	1·127	·913	85	3·132	2·540
52	1·172	·950	86	3·207	2·601
53	1·218	·986	87	3·283	2·660
54	1·265	1·024	88	3·348	2·722
55	1·315	1·062	89	3·359	2·785
56	1·359	1·102	90	3·515	2·849
57	1·408	1·142	91	3·591	2·910

Net circumference of tree, clear of bark	Quarter-girth content per foot run	True squared content per foot run	Net circumference of tree, clear of bark	Quarter-girth content per foot run	True squared content per foot run
Inches	Cub. ft.	Cub. ft.	Inches	Cub. ft.	Cub. ft.
92	3·671	2·975	136	8·025	6·502
93	3·751	3·041	137	8·145	6·599
94	3·833	3·108	138	8·265	6·697
95	3·916	3·171	139	8·381	6·796
96	4·000	3·240	140	8·503	6·890
97	4·080	3·308	141	8·625	6·990
98	4·165	3·378	142	8·749	7·091
99	4·251	3·444	143	8·814	7·193
100	4·338	3·515	144	9·000	7·290
101	4·226	3·587	145	9·120	7·394
102	4·515	3·659	146	9·247	7·494
103	4·601	3·728	147	9·375	7·601
104	4·691	3·802	148	9·504	7·700
105	4·782	3·876	149	9·634	7·806
106	4·8.5	3·952	150	9·765	7·912
107	4·968	4·024	151	9·891	8·020
108	5·062	4·100	152	10·023	8·128
109	5·152	4·177	153	10·156	8·231
110	5·248	4·255	154	10·291	8·340
111	5·345	4·330	155	10·426	8·450
112	5·428	4·410	156	10·562	8·561
113	5·541	4·490	157	10·692	8·667
114	5·640	4·571	158	10·830	8·779
115	5·736	4·652	159	10·069	8·892
116	5·837	4·730	160	11·108	9·000
117	5·938	4·813	161	11·249	9·114
118	6·041	4·897	162	11·390	9·232
119	6·145	4·981	163	11·525	9·345
120	6·250	5·062	164	11·669	9·461
121	6·350	5·125	165	11·812	9·572
122	6·456	5·234	166	11·957	9·684
123	6·563	5·332	167	12·103	9·809
124	6·671	5·405	168	12·250	9·928
125	6·780	5·494	169	12·390	10 042
126	6·890	5·583	170	12·538	10·163
127	6·996	5·673	171	12·687	10·284
128	7·107	5·760	172	12·837	10·407
129	7·219	5·851	173	12·988	10·523
130	7·333	5·943	174	13·140	10·647
131	7·447	6·036	175	13·286	10·771
132	7·562	6·125	176	13·439	10·896
133	7·672	6·220	177	13·593	11·015
134	7·789	6·315	178	13·749	11·142
135	7·907	6·411	179	13·905	11·269

Net circumference of tree, clear of bark	Quarter-girth content per foot run	True squared content per foot run	Net circumference of tree, clear of bark	Quarter-girth content per foot run	True squared content per foot run
Inches	Cub. ft.	Cub. ft.	Inches	Cub. ft.	Cub. ft.
180	14·062	11·396	211	19·316	15·647
181	14·212	11·519	212	19·490	15·808
182	14·371	11·648	213	19·686	15·952
183	14·531	11·778	214	19·873	16·104
184	14·691	11·909	215	20·061	16·257
185	14·853	12·033	216	20·250	16·411
186	15·015	12·166	217	20·430	16·564
187	15·151	12·299	218	20·620	16·711
188	15·335	12·432	219	20·811	16·867
189	15·507	12·559	220	21·003	17·023
190	15·665	12·694	221	21·196	17·181
191	15·832	12·830	222	21·390	17·330
192	16·000	12·967	223	21·576	17·489
193	16·160	13·097	224	21·771	17·648
194	16·329	13·235	225	21·967	17·808
195	16·499	13·373	226	22·165	17·960
196	16·670	13·512	227	22·363	18·122
197	16·842	13·645	228	22·562	18·284
198	17·015	13·786	229	22·752	18·447
199	17·181	13·927	230	22·953	18·601
200	17·355	14·070	231	23·155	18·766
201	17·530	14·212	232	23·357	18·931
202	17·707	14·348	233	23·561	19·096
203	17·884	14·493	234	23·765	19·253
204	17·062	14·638	235	23·961	19·421
205	18·232	14·784	236	24·167	19·589
206	18·412	14·922	237	24·273	19·758
207	18·593	15·068	238	24·581	19·918
208	18·774	15·217	239	24·790	20·088
209	18·957	15·366	240	25·000	20·259
210	19·140	15·507			

If the tree has any measurable arms, these are added to the value of the trunk, but estimated at a less price, as being more knotty and the wood not so well grown; and hedgerow timber is often worth less per foot than plantation timber for the same reason.

The topwood varies in quantity, of course, with the size of the trees and the number of arms, and depends in a measure on whether the trees have been grown in an open or confined situation, and its value will be more or less according to the trees that yield it. It is the quantity of the topwood very often that makes one tree yield more bark than another will do, so that this requires to be well seen to in oak-trees, the bark of which is so valuable. This is another reason why every tree for present cutting should be valued singly, for neither the timber, topwood, nor bark can be estimated correctly by any other method.

The quantity of bark to timber in oak-trees varies a good deal on different soils and under different conditions of growth, but on an average it runs about 7½ cwt. of hatched or cleaned bark to every load of timber. The better the climate and situation, and the faster the growth of the tree, the better and heavier the bark, as a rule. It is not so thick, but is better in quality, contains more sap, weighs more, and fetches a higher price from young trees than from old; also in plantation timber than in hedge-row trees; and when grown in a genial climate than in a colder one; while the yield is also less, but the quality not so good from poor soils as compared with the produce of more fertile land. From such-like causes it is found that the yield of bark varies as much as from 6 cwt. to 11 cwt. per load of timber.

The value of the bark is often in inverse proportion to its quantity; but this is governed solely by the quality. Some of the coarser sorts have of late years been selling at prices under 4*l.* per ton, while finely-grown young bark from the copses of Surrey and Sussex has been fetching over 8*l.* per ton, so that although the yield in the latter case is, in general, less, it pays much better than the larger crop of coarse bark which is reaped from older trees, especially when the latter have been grown in a less favourable climate.

(2) *Half-Grown Timber.*—The value in this case has to be found by anticipation of the sum which will be realised after a longer or shorter term of years. This is arrived at by estimating the *net* value of the mature crop of timber, to be cut in 10, 15, 20, or 25 years' time, as the case may be, and from that computing the *net* annual value over the whole period; and then finding the value in reversion of the sum of the present growth.

> *Example.*—A plantation is 30 years old, and it is estimated that it will be worth 120*l.* an acre, *net* value, at 50 years' growth; what is its present value in ready money, allowing interest at the rate of 5 per cent.?

120*l.* gives an average annual yield of 2*l.* 8*s.* 0*d.*; and 2*l.* 8*s.* 0*d.* for 30 years gives 72*l.* as the proportionate value of the present growth. But 1*l.* payable at the end of 20 years, on the 5 per cent. table, is worth in ready money only ·3769*l.* or 7*s.* 6¼*d.*, therefore

7*s.* 6¼*d.* × 72 = £27 1*s.* 6*d.*, the present purchase price of the timber per acre.

The price of the land must here be added to that of the timber in order to obtain the fee-simple value. Say, rental value 18*s.* 0¾*d.* per acre, at 35 years' purchase = 31*l.* 10*s.* 6½*d.* + 27*l.* 1*s.* 6*d.* = 58*l.* 12*s.* 0½*d.*, the fee-simple value.

It will be observed that the conversion rate cannot be kept at the full 120*l.*, because the buyer of the timber would in that case be paying not only for the present growth, but for the twenty years' growth that are yet to come. For example :

7*s.* 6¼*d.* × 120 = £45 2*s.* 6*d.*

This would give 18*l.* 1*s.* 0*d.* more than the present purchase price of the timber, and this overplus is in reality equal to 20 years' purchase on the rental value of the land. But the land in perpetuity ought to be worth about 35 years' purchase ; and, therefore, the proper way to arrive at the fee-simple value, if the conversion rate is kept at 120*l.*, would be to find the full value of the land separately, and then deduct 18*l.* 1*s.* 0*d.* from the sum so found, and add the remainder to the 45*l.* 2*s.* 6*d.* Thus—

	£	*s.*	*d.*
Rent of 18*s.* 0¾*d.* per acre, at 35 years' purchase =	31	10	6½
Deduct 20 years' value	18	1	0
	13	9	6½
Add	45	2	6
Fee-simple value per acre, as before .	58	12	0½

The age at which a plantation will come to maturity, and at which it should be cut down to yield most profit, is a question that admits of no general answer; for trees vary in growth and early maturity according to soil, situation, climate, &c., so that no fixed period of cutting can be generally applied to any class of trees grown in different places and under more or less varying conditions. Within the range of our own climate, however, the quality and depth of the soil that the tree stands in has more influence on the age of maturity than any other single circumstance. For it has been found that when an oak-tree, in good strong soil 2½ feet deep, will cut most profitably at 50 years, in an equally good and strong soil 3½ feet deep the same tree requires 70 years' growth, and, if the soil is 4½ feet deep, 100 years; but in lighter and sandy soils of the same depths, the periods of maturing are lessened respectively to 40, 60, and 80 years. The hard-wood trees are all slow growers; and it is generally held that if a hard-wood plantation requires sixty years to come to maturity, a fir plantation would be at its best in about half that time, or thirty years. Where the plantation is a mixed one, the relative quantities of fast and slow growing trees, and the effect which the greatest proportion of either will have on the time of average maturity, must necessarily be considered.

(3) *Young Plantations.*—These, when very young, and the cutting will be at a distant period, so that the mature value of the crop cannot be estimated, are valued, for purposes of transfer or otherwise, at what it has cost to produce them. The expenses which have to

be taken account of include the original outlay on plants, planting, fencing, draining, and forming the plantation, together with compound interest on the sum expended in this way up to the time of sale; and to this must be added the rental value of the land for the same period, with compound interest on that also. The rate of interest should be regulated by the goodness and promising appearance of the young plantation, as well as by the price of money at the time.

Example.—Suppose a wood of 20 acres has been planted 10 years, the original outlay 4*l.* an acre, and the rental value of the land 15*s.* an acre; what price ought to be paid for the plantation, reckoning compound interest at 5 per cent.? and what is the value of the fee-simple?

	£	s.	d.
£80 outlay, with compound interest at 5 per cent., for 10 years . . . . =	130	6	2¾
£15 annual rent for 10 years, at 5 per cent. compound interest . . . . =	189	2	0
Value of young plantation	319	8	2¾

Add the price of the land—

20 acres, worth £15 per annum, at 35 years' purchase =	525	0	0
Fee-simple value	844	8	2¾

(4) *Underwoods.*—The same principle as that adopted for half-grown timber must be applied in valuing underwoods. The Tables of Reversion, on which

these and all similar calculations must be based, will be found in the Appendix to this work.

Example.—An acre of underwood is now 4 years old, and it is estimated to cut at 7 years' growth, and then yield 21*l.* an acre; what is its present value in ready money, the rate of interest to be 5 per cent.?

Here 21*l.* is equal to 3*l.* per annum for the full period, and 3*l.* × 4 = 12*l.* the proportionate value of the present growth. But 1*l.* payable at the end of three years is worth in ready money, on the 5 per cent. table, only ·8638*l.* or 17*s.* 3¼*d.* Therefore 17*s.* 3¼*d.* × 12 = 10*l.* 7*s.* 3*d.*, the present purchase price of the underwood.

If the fee-simple value is required, the price of the land will have to be added.

The following table, which has been calculated on the above principle, will be found useful for showing at a glance the value of the underwood at any period of its growth, when it will cut at 7 years, and yield from 1*l.* to 35*l.* per acre, *net*:—

If the underwood will cut at 7 years' growth and yield the net sum per acre of	6 years' growth	5 years' growth	4 years' growth	3 years' growth	2 years' growth	1 year's growth
	will be worth on the 5 per cent. table					
£	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1	0 16 3¾	0 12 11¼	0 9 10¼	0 7 10	0 4 5½	0 2 1½
2	1 2 7½	1 5 10½	0 19 8½	0 15 8	0 8 11	0 4 3
3	2 8 10¼	1 18 9¾	1 9 6¾	1 3 6	0 13 4½	0 6 4½
4	3 5 1	2 11 9	1 19 5	1 11 4	0 17 10	0 8 6
5	4 1 6¾	3 4 8¼	2 9 3¼	1 19 2	1 2 3½	0 10 7½
6	4 17 10½	3 17 7½	2 19 1½	2 7 0	1 6 9	0 12 9
7	5 14 2¼	4 10 6¾	3 8 11¾	2 14 10	1 11 2½	0 14 10½
8	6 10 6	5 3 6	3 18 10	3 2 8	1 15 8	0 17 0
9	7 6 4¾	5 16 5¼	4 8 8¼	3 10 6	2 0 1½	0 19 1½
10	8 2 10½	6 9 4½	4 18 6½	3 18 4	2 4 7	1 1 3
11	8 9 1½	7 2 3¾	5 8 4¾	4 6 2	2 9 0½	1 3 4½
12	9 15 5¼	7 15 3	5 18 3	4 14 0	2 13 6	1 5 6
13	10 11 9	8 8 2¼	6 8 1¼	5 1 10	2 17 11½	1 7 7½
14	11 8 0¾	9 1 1½	6 17 11½	5 9 8	3 2 5	1 9 9
15	12 4 4½	9 14 0¾	7 7 9¾	5 17 6	3 6 10½	1 11 10½
16	13 0 8¼	10 7 0	7 17 8	6 5 4	3 11 4	1 14 0
17	13 17 0	10 19 11¼	8 7 6¼	6 13 2	3 15 9½	1 16 1½
18	14 13 3¾	11 12 10½	8 17 4½	7 1 0	4 0 3	1 18 3
19	15 9 7½	12 5 9¾	9 7 2¾	7 8 10	4 4 8½	2 0 4½
20	16 5 11¼	12 18 9	9 17 1	7 16 8	4 9 2	2 2 6
21	17 2 3	13 11 8¼	10 6 11¼	8 4 6	4 13 7½	2 4 7½
22	17 18 6¾	14 4 7½	10 16 9½	8 12 4	4 18 1	2 6 9
23	18 14 10½	14 17 6¾	11 6 7¾	9 0 2	5 2 6½	2 8 10½
24	19 11 2¼	15 10 6	11 16 6	9 8 0	5 7 0	2 11 0
25	20 7 6	16 3 5¼	12 6 4¼	9 15 10	5 11 5½	2 13 1½
26	21 3 9¾	16 16 4½	12 16 2½	10 3 8	5 15 11	2 15 3
27	22 0 1½	17 9 3¾	13 6 0¾	10 11 6	6 0 2½	2 17 4½
28	22 16 5¼	18 2 3	13 15 11	10 19 4	6 4 8	2 19 6
29	23 12 9	18 15 2¼	14 5 9¼	11 7 2	6 9 1½	3 1 7½
30	24 9 0¾	19 8 1½	14 15 7½	11 15 0	6 13 7	3 3 9
31	25 5 4½	20 1 0¾	15 5 5¾	12 2 10	6 18 0½	3 6 10½
32	26 1 8¼	20 14 0	15 15 4	12 10 8	7 2 6	3 8 0
33	26 18 0	21 6 11¼	16 5 2¼	12 18 6	7 6 11½	3 10 1½
34	27 14 3¾	21 19 10½	16 15 0½	13 6 4	7 11 5	3 12 3
35	28 10 7½	22 12 9¾	17 4 10¾	13 14 2	7 15 10½	3 14 4½

The price to be assumed for underwood, when it has yet to stand some years before cutting, must be judged of by the quality of the soil, the kinds of plants, the number and strength of the stools and shoots, the purposes to which the produce can be applied, the demand for such produce, and the charges that have to be allowed for labour, rates, carriage, &c.

The best sorts of underwood are birch, hazel, ash, and Spanish chestnut. They are all fast-growers, and do well as a rule in most places under fair conditions. With proper treatment, these and some other planted underwoods now generally cut at seven years' growth. They are chiefly grown for hoops and hop-poles, but are also largely used for hurdles, crates, pea-sticks, and thatching-rods, and the brokage is turned out in the shape of hoop-chips, cordwood, and faggots.

CHAPTER VI.

BUILDINGS.

To know the value of a house or building of any kind, it is needful to consider its capacity, fitness, strength, state of repair, and quality both of materials and workmanship; also the situation it stands in, the number of like buildings in the locality, and the rents got from them.

The value of a freehold house property is really made up of two parts—the building itself, and the land site. The mere building or structure may be worth much or little, according to the materials it is built of, and the strength, goodness, style, and finish of it; for in respect of these points some houses will stand longer than others, and need less repairs, and when pulled down some materials are worth more than others for rebuilding. But the ground on which the house stands has still a distinct value of its own, notwithstanding that it has been built on; and it is this value of the site, as it may be in a good business or fashionable locality, or otherwise, more than anything else, which causes houses that are in other respects alike to vary so much in rent and purchase price.

Good freehold house property in an improving district is usually reckoned to be worth twenty years' purchase of the net rental—that is, after the cost of repairs, insurance, landlord's taxes, other outgoings, and loss of rent by empty houses, are all met. But if there is set aside annually, out of the net rental so found, a further sum, which, accumulating at compound interest, will renew the building at the end of its natural life, as it is but right there should be, the property will then be worth a few more years' purchase on the reduced rental, for the value of the house is then practically as well secured as if the investment was one in land itself. Thus, if the net rental of a house is *55l.* 1*s.* 4*d.*, at twenty years' purchase, the selling value will be 1,101*l.* 6*s.* 8*d.* Now, if the house will require to be rebuilt in, say, fifty years, and it will cost 576*l.* 6*s.* 8*d.* to rebuild it, then, by Table XIII. of Appendix, it will be found that the annual sum, or sinking fund, which at 3 per cent. will amount to 1*l.* at the end of fifty years, is ·0089*l.*; therefore

$$\cdot0089 \times £576\ 6s.\ 8d. = £5\ 2s.\ 6\tfrac{1}{4}d.,$$

the annual sinking fund required to be set apart to rebuild the house at the end of fifty years. This sum, deducted from the net rent, makes the reduced rent 49*l.* 18*s.* 9$\frac{3}{4}$*d.*; so that the house ought then to be worth fully twenty-two years' purchase.

$$£1{,}101\ 6s.\ 8d. \div £49\ 18s.\ 9\tfrac{3}{4}d. = 22{\cdot}05 \text{ years' purchase.}$$

To ascertain the rent that should be put on a house is not quite an easy matter. The chief thing, of course, for a purchaser, is to see that the yearly rent at which the house is rated is such that the house is very well worth it, and will yield rather more than less; and it is equally the interest of a seller to see that a house is not underrated.

One method of estimating the rent is to apply the principle which is supposed to rule every business of this nature, and assume a fair rate of interest on the capital invested. But the actual cost incurred in building a house, and for the site, it is well known, may be no guide to the selling value; and, therefore, in looking at the interest which may be returned in the shape of rent this probability has to be kept clearly in view. The selling value may be more than the actual cost increased by a fair rate of profit, as will happen when ground-rents have increased in value, and when labour and materials have risen in price since the house was built; but it may also be less; for if the outlay was not judiciously made, or the building cost more than another of equal fitness and capacity could be erected for in as suitable a place, the excess of outlay will not be recovered in the rent.

The selling value of the house can, however, be arrived at, since there are generally a sufficient number of houses of different classes changing hands to form a basis on which to fix that, and the other items in the question are then simple enough. The net rent may be worked out from the selling value, by taking the number of years' purchase that the building is fit to be rated at; or it may be taken at the rate at which money can be got on bond. Then the *net* rent increased by the amounts actually required to cover cost of repairs, insurance, landlord's taxes, other outgoings, and loss of rent by empty houses, will give the *gross* rent.

This method of estimating the rent of a house or building is far from being all it should be, but no general rule on this point can be more than approximate; for, after all, the value of a house, like that of most other things, is ruled by the law of supply and demand, and the public fix the rate of that, while the valuer can only apply the ruling prices to the particular subjects to which they refer, and in doing so he must be guided a good deal by comparison, after inspecting the house or building to be dealt with.

If a house is found to be such that the letting value or gross rent can without hesitation be fixed at 68*l*., and the deductions that have to be allowed for amount to 12*l*. 18*s*. 8*d*., the net rent will be 55*l*. 1*s*. 4*d*.; and at twenty years' purchase the selling value will be 1,101*l*. 6*s*. 8*d*.

	£	s.	d.
Gross rent	68	0	0
Deductions	12	18	8

Say in the following proportions:—

	£	s.	d.
Repairs	4	10	6
Insurance	1	7	0
Land-tax, &c.	3	11	2
Empties	1	0	0
Collection, reletting, &c.	2	10	0
	12	18	8

	£	s.	d.
Net rent	55	1	4
Years' purchase			20
Selling value	1,101	6	8

Another way of valuing a house or building for rent is to take the floorage area as a guide. In estimating on this principle the position, amenity, superior solidity, finish, and style of the house as well as the height of the floors, the size and number of the rooms, and the cost of repairing, &c., have all to be taken into account, so far as they influence the letting value. The mode of computing on this system is simply to take the superficial area, in feet or yards, as the case may be, and multiply by the rate per foot or yard which a building of the class in question will let for in its situation, repeating the process over the different floors, all at their proper rates.

Most valuers have scales of prices which they apply in fixing the value of different classes of house property by this method, according to the rates they put them at; but it would probably be of little use to give examples of any such scales here, as the floorage rate varies from about 6*s*. per foot superficial in the higher cases to something like 2*d*. per foot, or less, in the lower scales, and one rate will not always apply to one class of buildings only, for these differ as much, or even more, sometimes among themselves, according to the materials they are built of, their style, and finish, the number of floors and rooms they contain, the locality they are situated in, and whether the site is a frontage or a garden one, &c.

First-class mansions in the west of London let readily at 5*s*. and 4*s*. per foot superficial, or over; and 3*s*. 8*d*. and 3*s*. 4*d*. are very common rates for mansions rather inferior to the former in style and finish, or not so desirably placed. This rent in these cases is the average over all the floors, and it is clear of taxes and interior repairs, but subject to a deduction of 8 or 10 per cent. for other contingencies. Smaller and middle-class houses in London yield, of course, very much less, and vary widely with the locality; while third and fourth-class houses sink still lower. Business and manufacturing premises have often a fictitious value, which depends altogether on the continuance of the special circumstances or facilities that this extraordinary value arises from. In small towns and country districts, buildings that are not first-class of their kind, whether used for commercial or residential purposes, are considerably lower rented than the same class in London and other large towns, and seldom yield more than 1*s*. per foot superficial. Workshops, and buildings of that sort, let at proportionally lower rates both in town and country.

A house of 68*l*. gross rent consists of, say, three floors, kitchen, and cellars, with yard and garden attached. On the floorage scale, the detailed valuation would be made in this way :—

		£	*s*.	*d*.
Ground floor	50 yds. super. at 7*s*.	17	15	0
First floor	50 „ „ 7*s*. 6*d*.	18	15	0
Second floor	50 „ „ 5*s*.	12	10	0
Kitchens	42 „ „ 2*s*. 6*d*.	5	5	0
Cellars	26½ „ „ 2*s*.	2	13	0
Yard and garden	148 „ „ 1*s*. 6*d*.	11	2	0
Gross rent		68	0	0
Deductions, as before		12	18	8
Net rent		55	1	4
	Years' purchase			20
Selling value		1,101	6	8

The rates put on the floorage area must be high enough to cover the value of the ground the house actually stands on; but if it is desired to know the full proportionate values of land and building each, they can be worked out separately. The cost at which a building was erected, as already pointed out, may be no guide to its actual value as it stands; but its actual value may be assumed from what it would now cost to put a similar building in its place. First-class houses are found to cost from 10*d*. to 1*s*. per cubic foot; second-class from 8*d*. to 10*d*.; third-class from 5*d*. to 7*d*.; and fourth-class buildings from 3*d*. to 4*d*. In the foregoing case the house may be taken as one of the third class, and its present value at 5*d.* per cubic foot. The land is valued at 2*s.* per square yard of annual value, and, being a ground-rent, will have to be put at twenty-five years' purchase. The relative values will then be—

	£	*s.*	*d.*
Building, 27,664 cub. ft. at 5*d.* . . .	576	6	8
Land, 210 square yds. at 50*s.*	525	0	0
Value of fee-simple .	£1,101	6	8

Here the land is rather less than one-half of the fee-simple value, and the cost of building is about 10½ years' purchase of the net rental. But the number of years' purchase which it requires to build diminishes in proportion as the value of the land increases; and, of course, where the land is of less value, it takes more years' purchase to build.

In order to know the price which should be given for the reversion to a house, first find the full value, and then subtract the worth of the years for which possession is deferred. Thus, reckoning a freehold house to be worth twenty years' purchase, the reversion thereof after fourteen years, on the 5 per cent. table, will be worth 10·101 years' purchase, let the yearly value be what it may.

The full value is	20	years' purchase
And a lease of 14 years is worth, at 5 per cent.	9·899	"
Leaving	10·101	

If the net yearly rent is 55*l.* 1*s.* 4*d.*, then—

	£	s.	d.
20 years' purchase will be worth . . .	1,101	6	8
And 9·899 years' purchase will be worth .	554	19	6½
Leaving for present value of reversion .	£556	7	1½

For on turning to the Tables of Reversion, it will be found that the present value of 1*l.*, due fourteen years hence, at the rate of 5 per cent. interest, is ·5051*l.*, and

£1,101 6*s.* 8*d.* × ·5051 = £556 7*s.* 1½*d.*

A *leasehold* building is valued on the same principles, at the proportion it bears to the freehold. The covenants of the lease generally bind the lessee for the time being to pay the landlord a certain annual ground-rent; to pay and discharge all rates, taxes, and impositions whatsoever which shall be charged or assessed on the property; to keep the premises in good tenantable repair, and in such state of repair to deliver them up to the landlord at the end of the term, together with any fixtures that may be erected thereon; and to insure the premises to a stipulated amount, and keep them so insured during the continuance of the lease.

The term of years to be allowed one who builds a house on a plot of ground belonging to another, so that he may recompense himself for the building of it, is easily determined. For suppose the lessee pays the landlord a ground-rent of 15*l.* a year, and expends 405*l.* in building a house which is worth a net yearly rent of 42*l.*; then the difference between the net rack-rent and the ground-rent will be 27*l.*; and this is the annual sum which remains to be bought out. Now, 27*l.* a year in 15 years comes to 405*l.*, and will build the house; so that the leaseholder ought to be allowed such a number of years in his lease as may be worth 15 years' purchase. On the 6 per cent. table, which will be the proper one to use here, it will be found that a lease of 40 is worth 15·046 years' purchase, and, therefore, if the lessee is content to take 6 per cent. for his money, he is entitled to a term of at least 40 years.

	£
Present value of £1 a year for 40 years, at 6 per cent.	15·046
	27
	£406·242

As to the purchase value of a leasehold building at any period of the term, it is found by the same tables. The aforesaid leasehold, let us say, is offered for sale when 14 years have elapsed, and it is wanted to know what price ought to be given for the unexpired term. There will remain 26 years to be purchased, and, on the 6 per cent. table, a lease of that duration is worth 13 years' purchase, which here amounts to 351*l.*

£
27
13
£351 the purchase price.

A reversion to the lease of a house for 40 years, with possession deferred 14 years, is worth, at 6 per cent., 5¾ years' purchase.

	A lease of	40	years is worth		15·046	years' purchase
	„	14	„	„	9·296	„
The reversion to	„	26	„	„	5·750	„

So that, if the yearly value is the same as before,

	£	s.	d.
	27	0	0
that multiplied by . .			5·750
makes the purchase price	£155	4	11¼

Or, we may take it thus: a lease of 26 years to be entered on at once is worth 13 years' purchase, and at 27*l.* yearly rent the purchase price was seen to be 351*l.* But the present value of 1*l.* due 14 years hence is only ·4423*l.*: therefore

£351 × ·4423 = £155 4*s.* 11¼*d.*,

the value of the reversion to the lease of the house.

If it is required to renew 14 years elapsed in the lease of a house for 40 years, the fine to be paid for so doing will, by Table VIII. of Appendix, be found to be 2·043 years' purchase, or 55*l.* 3*s.* 2½*d.* In proof of this, the result may be worked out in another way. The full term is 40 years, 26 of which are unexpired, and the difference is the term to be renewed. But, as already seen, a lease of 40 years is worth 15·046 years' purchase, and a lease of 26 years is worth 13·003 years' purchase; therefore the price of 14 years is 2·043 years' purchase, or 55*l.* 3*s.* 2½*d.*

CHAPTER VII.

GROUND-RENTS.

A FREEHOLD GROUND-RENT, with a rack-rent behind it from substantial erections of four to six times its value, and the reversion falling in at no very distant period, offers at once a good and secure income, since the owner runs no risk, and, while society is advancing, the ground value steadily increases.

The present market price for ground-rents of this description is twenty-five years' purchase of the full yearly value; and, if there is a registered indefeasible title, so that the transfer is rendered easy and inexpensive, the selling price is somewhat more.

Few things vary more in value than ground-rents, and they are ruled almost entirely by location with respect to facilities for business, the social character of the neighbourhood, and the freaks of fashion. In large towns, the building-ground is scant and precious, and yields enormous incomes, while near-by in the same town it may not be worth a fraction of the value that it reaches in the central position; and in small towns and villages there is often not a great difference in price between building and agricultural land. The most valuable building land in the world is in the immediate vicinity of the Royal Exchange, London, where, over a small area, the average maximum value, for commercial purposes, is something like 30*l.* per square foot, or 1,306,800*l.* per acre; and, within the city itself, this value diminishes to about 1*l.* per square foot, or 34,360*l.* per acre, and less. This may be equal to 24*s.* per square foot in the maximum, and to 9½*d.* per square foot in the minimum, of annual rent, and shows a difference of 30 to 1 in the value of City commercial building-land. In the fashionable residential districts of West London, ground-rents do not reach more than *one-tenth* of the average maximum value in the City proper; and in the populous suburbs of North and South London, the price declines to 1,500*l.* and even 1,000*l.* an acre. The latter figure represents an annual rent of 2*d.* per square yard, so that the difference in value between the highest and lowest-priced building-land in London is as 1,300 to 1. That, too, without descending to the very lowest class of rents. In unfavourable building localities, and in country towns with sparse populations, the price falls fully as low as 200*l.* an acre.

It is of much matter, then, to know the best way to reckon the value of ground-rents, so as to be able to judge of the true worth of them both in buying and selling.

One way is to value by the frontage, reckoning every foot in front to be worth 5, 10, 15, 20, or more shillings yearly, according to the place or street it is in ; and then this yearly value at twenty-five years' purchase; so that every foot of frontage is worth 125*s.*, 250*s.*, 375*s.*, 500*s.*, or more. If the site has 20 feet of 'frontage,' and every such foot is reckoned at 20*s.* 4*d.* of annual rent, that will be equal to a ground-rent of 20*l.* 6*s.* 8*d.*, and at twenty-five years' purchase its full value will be 508*l.* 6*s.* 8*d.* But this method of valuing is very uncertain, the back depth of the land, as well as the district or street it stands in, making a great difference in the price.

A better way is to rate the ground both in front and back extent. In doing this, some observe the rather needless distinction of putting a comparatively low price on the back extension of the ground, after the manner which is here set down :

Per foot of frontage	Per foot of back extent	Per foot of frontage	Per foot of back extent	
s.	*d.*	*s.*	*s.*	*d.*
1	0½	8	0	6
2	1	9	0	7
3	1½	10	0	8
4	2	12	0	10
5	3	15	1	0
6	4	20	1	3
7	5			

So that, if a building site, say 20 feet in front by 50 feet in length aback, is estimated, after this scale, to be worth 4*s.* per foot of frontage and 2*d.* per foot of back depth, the ground-rent will be 20*l.* 6*s.* 8*d.* a year, as before. It is quite as easy, however, and rather more intelligible, to rate the ground at an equal price per square foot over the whole surface. In the above case, for example, the area of the ground being just 1,000 square feet, at 4·88 pence per foot it will amount to the same annual ground-rent of 20*l.* 6*s.* 8*d.* This method is altogether better than the former ones.

Another, and perhaps the best way of coming at the value of the site is, to estimate the full value of the house, then deduct the cost and charges of building, and the difference is the value of the ground-rent. That is to say, if the net yearly rent of a house is 70*l.*, and 6 per cent. on 700*l.* will pay the builder, the ground-rent will be worth 28*l.* a year.

	£
Net rent	70
Deduct 6 per cent. on £700 to pay builder .	42
Annual ground-rent	28
Years' purchase	25
Purchase value of ground-rent . .	£700

If, instead of taking the yearly charges, we deal with the capital sums, the result will still be the same.

	£
Fee-simple value, at 20 years' purchase .	1,400
Deduct cost and charges of building . .	700
Value of ground-rent	£700

It is pretty clear that the builder can have no more than 6 per cent. for his money in this case. For the full value being twenty years' purchase, 5 per cent. must be the average rate, and the land and building here each being exactly one-half the fee-simple value, if the land as a ground-rent is worth twenty-five years' purchase it must be rated at 4 per cent., and the building can have no less than 6 per cent., nor can it require more.

$$\underline{20} \times 5 = \underline{100}$$

$$20\left\{\begin{matrix}10 \times 4 = 40\\ 10 \times 6 = 60\end{matrix}\right\}100.$$

Where the property is of a more valuable description, and the rents and land value are proportionally higher, the house will be built for much less than ten years' purchase; while, in other cases again, as with some cottage properties, ten years' rent will not nearly suffice to build; so that on the one side the ground-rent will be worth more, and it will require a higher rate of interest to pay the builder; and, on the other side, the ground-rent will be less, and a lower rate of interest will pay the builder.

As to this, take two more examples.

First—A house worth the net yearly rent of 960*l.*, and which cost 8,000*l.* to build:

	£
Net rent	960
Deduct 6·4 per cent. on £8,000 to pay builder	512
Annual ground-rent	448
Years' purchase	25
Purchase value of ground-rent .	£11,200

	£
Fee-simple at 20 years' purchase . . .	19,200
Deduct cost and charges of building . .	8,000
Value of ground-rent . . .	£11,200

Second—A house property of four cottages lets for 30*l.* net, and cost 480*l.* to build:

	£	s.	d.
Net rent	30	0	0
Deduct £5 5*s.* per cent. on £480 to pay builder	25	4	0
Annual ground-rent	4	16	0
Years' purchase			25
Purchase value of ground-rent .	£120	0	0

	£
Fee-simple at 20 years' purchase . . .	600
Deduct cost and charges of building . .	480
Value of ground-rent . . .	£120

In the first of these two examples it will be seen that the ground-rent being of greater value, the cost and charges of building can be done for 8⅓ years' purchase of the net rack-rent, and it takes 6·4 per cent. to pay the builder; but in the second case the ground-rent is worth little, and sixteen years' purchase are absorbed in building, so that the rate of interest on the cost of the latter falls to 5¼ per cent.

This way of valuing ground-rents is as equal and certain as any general rule can be, for if the data on which the calculations are based be rightly assumed—viz., on these three points, the *net letting value*, the *cost and charges of building*, and the *number of years' purchase for the fee-simple*—the conclusions must be correct. The main thing is to consider well the place the house stands in, since the same building may be worth twice as much rent in one place as in another, and the difference here is clearly attributable to the site; also, while the value of the ground-rent may vary from the merest nominal sum up to a very high figure, a house even of the poorest class cannot be built without a large relative expense.

Leasehold ground-rents should be valued so as to pay 1 or 2 per cent. more than freeholds of the same class. The value, however, depends very much upon the nature of the covenants in the superior lease, and upon the right of the owner of the freehold to grant that lease.

The difference between a freehold and a leasehold ground-rent may be illustrated in this way. A. owns five acres of building-land, which he lets to B. for 99 years, at an annual rent of 150*l.*, and B. covenants to build within two years houses of the yearly value of 750*l.* on it. But B. builds houses worth 750*l.* a year on half the land, and charges the whole rent of 150*l.* a year on this; and he lets the other half at once to C., for 90 years, at a yearly rent of 100*l.*, with obligations on the latter to build houses worth 500*l.* a year. A. has a freehold ground-rent of 150*l.* a year, and at the end of 99 years the reversion in full is his also; while B. has a leasehold ground-rent of 100*l.* a year, with a reversion to the rack-rent on the same for the last 9 years of his term.

Suppose, now, one contracts to buy the ground-rent of 100*l.* a year, created on the lease from B. to C., after 30 years are expired, what price ought he to give for it?

The whole term being 90 years, there will remain 60 years to be purchased; and the present value of 100*l.* a year for that period will be the purchase price. Now, 100*l.* a year, to continue 60 years, on the 6 per cent. table, is worth 16·161 years' purchase; therefore,

£100 × 16·161 = £1,616 2*s.*,

the price to be given for the leasehold.

CHAPTER VIII.

PROPERTY TAKEN FOR RAILWAYS AND PUBLIC WORKS.

In valuing property taken possession of for public use, under the Railway or General Improvement Acts, the first thing to do is to find its full market value, according to the rules already laid down for dealing with different classes of property, and then add such a sum as will make adequate compensation to the owner for forced sale, and cover loss and injury of every kind if any such is sustained.

The interests to be purchased and compensated, as put forward in such claims, are often very numerous, and necessarily vary in almost every case, but the chief are these:—

The land, buildings, &c., actually taken.
Severance and injury.
Expenses of removal.
Trade and domestic fixtures.
Loss of trade profits.
Loss on forced sale of stock.

With reference to the value of *freehold land*, the general rule is, first to get at the net rent or letting value, and having found that, to put it at 35 years' purchase, more or less, as the case may seem to demand; then to add 10 per cent. for forced sale. *Freehold houses* and *buildings* are estimated at 20 years' purchase of the net rental, clear of repairs if any such are needed, and, as in the case of land, an addition of 10 per cent. for forced sale. The value put on the property in the first instance ought to be the full market value at the time. If there is a reasonable expectation of the property rising in value within a short time, that also should be an element in determining the number of years' purchase to be given; and where there is such an expectation it must be based on the usual data, and will be as accessible to the valuer as to any one else.

The owner of a *reversion* is entitled to such a sum as will, if accumulated at interest until the date when it falls in, amount to the then fee-simple value; and, as the public funds are the only class of securities which are really available for that purpose, the valuation should be made on a 3½ or 4 per cent. table.

For *leaseholds*, the measure of the landlord's claim is the value of the rent and the reversion; that of the tenant's is the value of the term subject to the rent, and an allowance for forced sale in proportion to the length of his term.

Severance and injury done to the remaining estate by the manner in which it may be cut, or by the use to which the part taken is put, &c., has also to be paid for. But no general rule can be laid down on this point, because the proportion between the severance damage and the value of the property taken varies in almost every case, and each has to be considered and dealt with separately on its own merits. A line at the side of a field, for example, does very little damage in this way compared with what it would do if it went right through the middle of the field; and the same thing holds good with regard to buildings. In the case of lands, the compensation to be allowed under this head can frequently be measured by the outlay required to make a rearrangement of fields and alteration of fences; but sometimes no such adaptation is possible; and owner and lessee both may have their claims. Risk to buildings, from the proximity of a railway cutting which may injure the foundations, or anything of that kind, can only be met by capitalising such a sum as will provide the means of rebuilding in the course of a few years, or the interest of which will pay the necessary premiums of insurance. If the act complained of is the destruction of a building, the measure of damages is not the cost of putting a new building in the place of an old one, but of replacing the original building in its former condition, making allowance to the owner for the deprivation of the use of his property. When roads, watercourses, and drainage are injured or interfered with, the amount of compensation may be estimated by the cost of the works necessary to remedy what is complained of in respect thereof.

Occupiers, whether owners, lessees, or yearly tenants, are entitled to compensation for the *expenses of removal*, for which very moderate sums are now given, and for any loss or *damage to furniture and other effects* which they have been made to sustain.

Trade and domestic fixtures are another subject for compensation, and require a separate estimation.

If the occupier carries on a trade or business, he may also claim for *loss of profits*, whether the same arises from partial interference with, or total annihilation of, an established business. The proper amount of compensation under this head, of course, varies greatly—as from one to five years' purchase of the net profits for total annihilation, according to the nature and circumstances of the business, and whether the trader is owner, lessee, or only tenant from year to year. In general, an owner and lessee should have at least one year's purchase more than one who has only a yearly interest in the premises.

Loss from forced sale of stock is another consideration at times, and, as in many of the foregoing, each case requires to be dealt with separately as it arises. In some businesses the loss in this respect amounts to nothing, while in others it is often very considerable, as also are the sums claimed and generally agreed on.

Examples.

1. A FREEHOLDER'S CLAIM.

	£	s.	d.
5 acres of land, let at 40*s.* per acre, at 35 years' purchase	350	0	0
2 acres of garden land, let at £6 per acre, at 30 years' purchase	360	0	0
A freehold house and land, of the clear annual value of £50, at 20 years' purchase	1,000	0	0
	1,710	0	0
Add 10 per cent. for forced sale	171	0	0
Severance and injury	120	0	0
Expenses of removal	25	0	0
Total	2,026	0	0

2. A LEASEHOLDER'S CLAIM.

A leasehold ground-rent of £12 per annum, arising from a piece of land with a house and shop thereon, 40 years of the original term unexpired, and the building lease out in 19 years:—

	£	s.	d.
£12 per annum for 19 years at 6 per cent.	133	17	11
Reversion to rack-rent of £70 at end of 19 years, and to continue 21 years thereafter	466	9	0
Compensation	200	0	0
Total	800	6	11

3. A TRADESMAN'S CLAIM.

	£	s.	d.
Lease of 19 years unexpired term, and beneficial value £25 per annum, at 6 per cent.	278	19	0
Profits on trade annihilated, £250 per annum, at 4 years' purchase	1,000	0	0
Loss on forced sale of stock	550	0	0
Fixtures	35	0	0
Compensation	112	0	0
Total	1,975	19	0

APPENDIX

VALUATION TABLES

TABLE I.

Showing the Purchase Value of Leases, Estates, or Annuities for terms of years certain *at the several rates of* 3, 4, 5, 6, 7, 8, *and* 10 *per cent. Interest.*

Years	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.	Years' purchase, 7 per cent.	Years' purchase, 8 per cent.	Years' purchase, 10 per cent.
1	·971	·962	·952	·943	·935	·926	·909
2	1·913	1·886	1·859	1·833	1·808	1·783	1·736
3	2·829	2·775	2·723	2·673	2·624	2·577	2·487
4	3·717	3·630	3·546	3·465	3·387	3·312	3·170
5	4·580	4·452	4·329	4·212	4·100	3·993	3·791
6	5·417	5·242	5·076	4·917	4·767	4·623	4·355
7	6·230	6·002	5·786	5·582	5·389	5·206	4·868
8	7·020	6·733	6·463	6·210	5·971	5·747	5·335
9	7·786	7·435	7·108	6·802	6·515	6·247	5·759
10	8·530	8·111	7·722	7·360	7·024	6·710	6·145
11	9·253	8·760	8·306	7·887	7·499	7·139	6·495
12	9·954	9·385	8·863	8·384	7·943	7·536	6·814
13	10·635	9·986	9·394	8·853	8·358	7·904	7·103
14	11·296	10·563	9·899	9·295	8·745	8·244	7·367
15	11·938	11·118	10·380	9·712	9·108	8·559	7·606
16	12·561	11·652	10·838	10·106	9·447	8·851	7·824
17	13·166	12·166	11·274	10·477	9·763	9·122	8·022
18	13·754	12·659	11·690	10·828	10·059	9·372	8·201
19	14·324	13·134	12·085	11·158	10·336	9·604	8·365
20	14·877	13·590	12·462	11·470	10·594	9·818	8·514
21	15·415	14·029	12·821	11·764	10·836	10·017	8·649
22	15·937	14·451	13·163	12·042	11·061	10·201	8·772
23	16·444	14·857	13·489	12·303	11·272	10·371	8·883
24	16·936	15·247	13·799	12·550	11·469	10·529	8·985
25	17·413	15·622	14·094	12·783	11·654	10·675	9·077
26	17·977	15·983	14·375	13·003	11·826	10·810	9·161
27	18·327	16·330	14·643	13·211	11·987	10·935	9·237
28	18·764	16·663	14·898	13·406	12·137	11·051	9·307
29	19·188	16·984	15·141	13·591	12·278	11·158	9·370
30	19·600	17·292	15·372	13·765	12·489	11·258	9·427
31	20·000	17·588	15·593	13·929	12·532	11·350	9·479
32	20·389	17·874	15·803	14·084	12·647	11·435	9·526
33	20·766	17·148	16·003	14·230	12·754	11·514	9·569
34	21·132	18·411	16·193	14·368	12·854	11·587	9·609
35	21·487	18·665	16·374	14·498	12·948	11·655	9·644
36	21·832	18·908	16·547	14·621	13·035	11·717	9·677
37	22·167	19·143	16·711	14·737	13·117	11·775	9·706

TABLE I.—*continued.*

Years	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.	Years' purchase, 7 per cent.	Years' purchase, 8 per cent.	Years' purchase, 10 per cent.
38	22·492	19·368	16·868	14·846	13·193	11·829	9·733
39	22·808	19·584	17·017	14·949	13·265	11·879	9·757
40	23·115	19·793	17·159	15·046	13·332	11·925	9·779
41	23·412	19·993	17·294	15·138	13·394	11·967	9·799
42	23·701	20·186	17·423	15·225	13·452	12·007	9·817
43	23·982	20·371	17·546	15·306	13·507	12·043	9·834
44	24·254	20·549	17·663	15·383	13·558	12·077	9·849
45	24·519	20·720	17·774	15·456	13·606	12·108	9·863
46	24·775	20·885	17·880	15·524	13·650	12·137	9·875
47	25·025	21·043	17·981	15·589	13·692	12·164	9·887
48	25·267	21·195	18·077	15·650	13·730	12·189	9·897
49	25·502	21·341	18·169	15·708	13·767	12·212	9·906
50	25·730	21·482	18·256	15·762	13·801	12·233	9·915
51	25·951	21·617	18·339	15·813	13·832	12·253	9·923
52	26·166	21·749	18·418	15·861	13·862	12·272	9·930
53	26·375	21·873	18·493	15·907	13·890	12·288	9·936
54	26·578	21·993	18·565	15·950	13·916	12·304	9·942
55	26·774	22·109	18·633	15·991	13·940	12·319	9·947
56	26·965	22·220	18·699	16·029	13·963	12·332	9·952
57	27·151	22·327	18·761	16·065	13·984	12·344	9·956
58	27·331	22·430	18·820	16·099	14·003	12·356	9·960
59	27·506	22·528	18·876	16·131	14·022	12·367	9·964
60	27·676	22·623	18·929	16·161	14·039	12·377	9·967
61	27·840	22·715	18·980	16·190	14·055	12·386	9·970
62	28·000	22·803	19·029	16·217	14·070	12·394	9·973
63	28·156	22·887	19·075	16·242	14·084	12·402	9·975
64	28·306	22·969	19·119	16·266	14·098	12·409	9·978
65	28·453	23·047	19·161	16·289	14·110	12·416	9·980
66	28·595	23·122	19·201	16·310	14·121	12·422	9·982
67	28·733	23·194	19·239	16·331	14·132	12·428	9·983
68	28·867	23·264	19·275	16·350	14·142	12·433	9·985
69	28·997	23·330	19·310	16·368	14·152	12·438	9·986
70	29·123	23·395	19·343	16·385	14·160	12·443	9·987
71	29·246	23·456	19·374	16·401	14·169	12·447	9·988
72	29·365	23·516	19·404	16·416	14·176	12·451	9·990
73	29·481	23·573	19·432	16·430	14·183	12·455	9·990
74	29·593	23·628	19·459	16·443	14·190	12·458	9·991
75	29·702	23·680	19·485	16·456	14·196	12·461	9·992
76	29·808	23·731	19·509	16·468	14·202	12·464	9·993
77	29·910	23·780	19·533	16·479	14·208	12·467	9·994
78	30·010	23·827	19·555	16·490	14·213	12·469	9·994
79	30·107	23·872	19·576	16·500	14·218	12·471	9·995
80	30·201	23·915	19·596	16·509	14·222	12·474	9·995

TABLE I.—*continued.*

Years	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.	Years' purchase, 7 per cent.	Years' purchase, 8 per cent.	Years' purchase, 10 per cent.
81	30·292	23·957	19·616	16·518	14·226	12·476	9·996
82	30·381	23·997	19·634	16·526	14·230	12·477	9·996
83	30·467	24·036	19·651	16·534	14·234	12·479	9·996
84	30·550	24·073	19·668	16·542	14·237	12·481	9·997
85	30·631	24·109	19·684	16·549	14·240	12·482	9·997
86	30·710	24·143	19·699	16·556	14·243	12·483	9·997
87	30·786	24·176	19·713	16·562	14·246	12·485	9·997
88	30·860	24·207	19·727	16·568	14·249	12·486	9·998
89	30·932	24·238	19·740	16·573	14·251	12·487	9·998
90	31·002	24·267	19·752	16·579	14·253	12·488	9·998
91	31·070	24·285	19·764	16·584	14·255	12·489	9·998
92	31·136	24·323	19·775	16·588	14·257	12·489	9·998
93	31·200	24·349	19·786	16·593	14·259	12·490	9·999
94	31·262	24·374	19·796	16·597	14·261	12·491	9·999
95	31·323	24·398	19·806	16·601	14·263	12·492	9·999
96	31·381	24·421	19·815	16·605	14·264	12·492	9·999
97	31·438	24·443	19·824	16·608	14·266	12·493	9·999
98	31·493	24·465	19·832	16·611	14·267	12·493	9·999
99	31·547	24·485	19·840	16·615	14·268	12·494	9·999
100	31·599	24·505	19·848	16·618	14·269	12·494	9·999
Perpetuity	33·333	25·000	20·000	16·667	14·286	12·500	10·000

TABLE II.

Showing the Purchase Value of Leases, Estates, or Annuities held on a Single Life *at the several rates of* 3, 4, 5, 6, 7, *and* 8 *per cent. Interest.* (*Carlisle Table of Mortality.*)

Ages	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.	Years' purchase, 7 per cent.	Years' purchase, 8 per cent.
1	20·08	16·55	13·99	12·08	10·61	9·44
2	21·50	17·73	14·98	12·93	11·34	10·09
3	22·68	18·72	15·82	13·65	11·98	10·65
4	23·28	19·23	16·27	14·04	12·32	10·96
5	23·69	19·59	16·59	14·33	12·57	11·19
6	23·85	19·75	16·73	14·46	12·70	11·30
7	23·87	19·79	16·79	14·52	12·76	11·36
8	23·80	19·76	16·79	14·53	12·77	11·37
9	23·68	19·69	16·74	14·50	12·75	11·36

Table II.—*continued.*

Ages	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.	Years' purchase, 7 per cent.	Years' purchase, 8 per cent.
10	23·51	19·58	16·67	14·45	12·72	11·33
11	23·33	19·46	16·58	14·38	12·67	11·30
12	23·14	19·33	16·49	14·32	12·62	11·26
13	22·96	19·21	16·41	14·26	12·57	11·22
14	22·77	19·08	16·32	14·19	12·52	11·18
15	22·58	18·96	16·23	14·13	12·47	11·15
16	22·40	18·84	16·15	14·07	12·43	11·11
17	22·23	18·72	16·07	14·01	12·39	11·08
18	22·06	18·61	15·99	13·96	12·35	11·05
19	21·88	18·49	15·90	13·90	12·31	11·02
20	21·70	18·36	15·82	13·83	12·26	10·98
21	21·51	18·23	15·73	13·77	12·21	10·95
22	21·31	18·09	15·63	13·70	12·16	10·91
23	21·10	17·95	15·53	13·62	12·10	10·86
24	20·89	17·80	15·42	13·54	12·04	10·81
25	20·67	17·64	15·30	13·46	11·97	10·76
26	20·44	17·49	15·19	13·37	11·90	10·71
27	20·21	17·32	15·07	13·28	11·93	10·65
28	19·98	17·15	14·94	13·18	11·76	10·59
29	19·76	17·00	14·83	13·10	11·69	10·54
30	19·56	16·85	14·72	13·02	11·64	10·50
31	19·35	16·71	14·62	12·94	11·58	10·45
32	19·14	16·55	14·51	12·86	11·52	10·41
33	18·91	16·39	14·39	12·77	11·45	10·35
34	18·68	16·22	14·26	12·67	11·37	10·31
35	18·43	16·04	14·13	12·57	11·30	10·23
36	18·18	15·86	13·99	12·47	11·21	10·17
37	17·93	15·67	13·84	12·35	11·12	10·10
38	17·67	15·47	13·69	12·24	11·03	10·02
39	17·40	15·27	13·54	12·12	10·94	9·95
40	17·14	15·07	13·39	12·00	10·85	9·87
41	16·89	14·88	13·24	11·89	10·76	9·80
42	16·64	14·69	13·10	11·78	10·67	9·74
43	16·39	14·51	12·96	11·67	10·59	9·67
44	16·13	14·31	12·81	11·55	10·49	9·60
45	15·86	14·10	12·65	11·43	10·40	9·52
46	15·58	13·89	12·48	11·30	10·29	9·44
47	15·29	13·66	12·30	11·15	10·18	9·34
48	14·99	13·42	12·11	11·00	10·05	9·24
49	14·65	13·15	11·89	10·82	9·91	9·12
50	14·30	12·87	11·66	10·63	9·75	8·99
51	13·93	12·57	11·41	10·42	9·57	8·84
52	13·56	12·26	11·15	10·21	9·39	8·68
53	13·18	11·95	10·89	9·99	9·21	8·52

TABLE II.—*continued.*

Ages	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.	Years' purchase, 7 per cent.	Years' purchase, 8 per cent.
54	12·80	11·63	10·62	9·76	9·01	8·36
55	12·41	11·30	10·35	9·52	8·81	8·18
56	12·01	10·97	10·06	9·28	8·60	7·99
57	11·61	10·63	9·77	8·03	8·38	7·80
58	11·22	10·29	9·48	8·77	8·15	7·61
59	10·84	9·96	9·20	8·53	7·94	7·42
60	10·49	9·66	8·94	8·30	7·74	7·24
61	10·18	9·40	8·71	8·11	7·57	7·10
62	9·88	9·14	8·49	7·91	7·40	6·95
63	9·57	8·87	8·26	7·71	7·23	6·70
64	9·25	8·59	8·02	7·50	7·04	6·63
65	8·92	8·31	7·77	7·28	6·85	6·46
66	8·58	8·01	7·50	7·05	6·64	6·27
67	8·23	7·70	7·23	6·80	6·42	6·07
68	7·87	7·38	6·94	6·55	6·19	5·87
69	7·50	7·05	6·64	6·28	5·95	5·64
70	7·12	6·71	6·34	6·00	5·69	5·41
71	6·74	6·36	6·01	5·70	5·42	5·16
72	6·37	6·03	5·71	5·42	5·16	4·92
73	6·04	5·72	5·43	5·17	4·93	4·70
74	5·75	5·46	5·19	4·94	4·72	4·51
75	5·51	5·24	4·99	4·76	4·55	4·35
76	5·28	5·02	4·79	4·58	4·38	4·20
77	5·06	4·82	4·61	4·41	4·23	4·06
78	4·84	4·62	4·42	4·24	4·07	3·91
79	4·59	4·39	4·21	4·04	3·88	3·74
80	4·36	4·18	4·01	3·86	3·71	3·58
81	4·12	3·95	3·80	3·66	3·52	3·40
82	3·90	3·75	3·61	3·47	3·35	3·24
83	3·67	3·53	3·41	3·29	3·17	3·07
84	3·45	3·33	3·21	3·10	3·00	2·90
85	3·23	3·12	3·01	2·91	2·82	2·73
86	3·03	2·93	2·83	2·74	2·65	2·57
87	2·87	2·78	2·68	2·60	2·52	2·44
88	2·78	2·68	2·60	2·52	2·44	2·37
89	2·66	2·58	2·49	2·42	2·34	2·28
90	2·50	2·42	2·34	2·27	2·20	2·13
91	2·48	2·40	2·32	2·25	2·18	2·12
92	2·58	2·49	2·41	2·34	2·27	2·20
93	2·69	2·60	2·52	2·44	2·37	2·30
94	2·74	2·65	2·57	2·49	2·42	2·35
95	2·76	2·67	2·60	2·52	2·45	2·38
96	2·70	2·63	2·56	2·49	2·42	2·36
97	2·56	2·49	2·43	2·37	2·31	2·25

TABLE II.—*continued.*

Ages	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.	Years' purchase, 7 per cent.	Years' purchase, 8 per cent.
98	2·39	2·33	2·28	2·23	2·18	2·13
99	2·13	2·09	2·04	2·00	1·96	1·93
100	1·68	1·65	1·62	1·60	1·57	1·54
101	1·23	1·21	1·19	1·18	1·16	1·14
102	·77	·76	·75	·74	·74	·73
103	·32	·32	·32	·31	·31	·31

TABLE III.

Showing the Purchase Value of Leases, Estates, or Annuities held on Two Joint Lives *at the several rates of* 3, 4, 5, *and* 6 *per cent. Interest.* (*Carlisle Table.*)

Ages	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.
10—10	19·96	17·05	14·80	13·04
10—20	18·87	16·26	14·22	12·59
10—30	17·41	15·19	13·41	11·97
10—40	15·60	13·83	12·37	11·16
10—50	13·31	12·03	10·95	10·02
10—60	9·95	9·19	8·53	7·94
10—70	6·87	6·48	6·13	5·81
10—80	4·26	4·08	3·92	3·77
20—20	17·99	15·61	13·72	12·20
20—30	16·74	14·67	13·00	11·64
20—40	15·13	13·44	12·06	10·90
20—50	12·99	11·76	10·72	9·83
20—60	9·78	9·04	8·39	7·82
20—70	6·79	6·40	6·06	5·74
20—80	4·22	4·05	3·89	3·74
30—30	15·78	13·93	12·41	11·17
30—40	14·44	12·89	11·60	10·52
30—50	12·55	11·39	10·40	9·55
30—60	9·52	8·82	8·19	7·64
30—70	6·66	6·29	5·95	5·64
30—80	4·16	3·99	3·84	3·69
40—40	13·48	12·12	10·98	10·01
40—50	11·95	10·89	9·98	9·19

TABLE III.—*continued.*

Ages	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.
40—60	9·22	8·55	7·96	7·43
40—70	6·51	6·15	5·83	5·53
40—80	4·10	3·93	3·78	3·64
50—50	10·94	10·05	9·29	8·61
50—60	8·72	8·13	7·60	7·12
50—70	6·33	6·00	5·69	5·41
50—80	4·05	3·89	3·74	3·60
60—60	7·29	6·85	6·45	6·09
60—70	5·56	5·29	5·04	4·81
60—80	3·69	3·55	3·43	3·31
70—70	4·55	4·36	4·19	4·02

TABLE IV.

Showing the Purchase Value of Leases, Estates, or Annuities held on the Longest of Two Lives *at the several rates of* 3, 4, 5, *and* 6 *per cent. Interest.* (*Carlisle Table.*)

Ages	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.
10—10	27·06	22·12	18·54	15·86
10—20	26·33	21·68	18·27	15·69
10—30	25·66	21·21	17·97	15·50
10—40	25·05	20·82	17·68	15·28
10—50	24·50	20·42	17·38	15·05
10—60	24·05	20·05	17·08	14·81
10—70	23·76	19·81	16·87	14·64
10—80	23·61	19·68	16·76	14·49
20—20	25·40	21·11	17·91	15·46
20—30	24·50	20·54	17·53	15·21
20—40	23·71	19·98	17·15	14·93
20—50	23·00	19·46	16·75	14·63
20—60	22·40	18·98	16·36	14·32
20—70	22·03	18·66	16·09	14·09
20—80	21·84	18·49	15·94	13·95

TABLE IV.—*continued.*

Ages	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.
30—30	23·33	19·77	17·03	14·87
30—40	22·25	19·03	16·50	14·50
30—50	21·31	18·33	15·98	14·10
30—60	20·52	17·70	15·47	13·68
30—70	20·02	17·27	15·10	13·37
30—80	19·75	17·04	14·89	13·18
40—40	20·80	18·02	15·80	13·99
40—50	19·49	17·05	15·06	13·44
40—60	18·42	16·18	14·37	12·87
40—70	17·75	15·63	13·89	12·46
40—80	17·41	15·32	13·62	12·22
50—50	17·66	15·68	14·03	12·64
50—60	16·06	14·40	13·00	11·81
50—70	15·09	13·58	12·30	11·21
50—80	14·61	13·16	11·93	10·88
60—60	13·69	12·47	11·42	10·51
60—70	12·05	11·08	10·23	9·49
60—80	11·16	10·29	9·52	8·85
70—70	9·69	9·05	8·48	7·97

TABLE V.

Showing the Purchase Value of Leases, Estates, or Annuities held on the Longest of Three Lives *at the several rates of* 3, 4, 5, *and* 6 *per cent. Interest.* (*Carlisle Table.*)

Ages	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.
10—10—10	28·30	22·89	19·01	16·17
10—15—15	27·84	22·65	18·88	16·10
10—20—10	27·89	22·66	18·89	16·11
20	27·37	23·37	18·71	15·99
10—25—15	27·42	22·40	18·73	16·00
25	26·93	22·10	18·54	15·88
10—30—10	27·56	22·46	18·77	16·03
20	26·98	22·14	18·56	15·90
30	26·50	21·85	18·40	15·79

TABLE V.—*continued.*

Ages	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.
10—35—15	27·12	22·21	18·62	15·93
25	26·56	21·87	18·40	15·78
35	26·08	21·56	18·22	15·67
10—40—10	27·33	22·32	18·66	15·94
20	26·70	21·95	18·44	15·82
30	26·13	21·59	18·23	15·69
40	25·66	21·27	18·00	15·52
10—45—15	26·92	22·04	18·50	15·85
25	26·26	21·61	18·26	15·70
35	25·70	21·30	18·01	15·53
45	25·25	20·99	17·80	15·38
10—50—10	27·16	22·18	18·56	15·86
20	26·46	21·72	18·32	15·72
30	25·84	21·38	18·08	15·57
40	25·30	21·02	17·81	15·37
50	24·87	20·70	17·58	15·20
10—55—15	26·73	21·92	18·40	15·76
25	28·06	21·51	18·14	15·60
35	25·46	21·12	17·88	15·42
45	24·94	20·75	17·63	15·25
55	24·54	20·45	17·40	17·07
10—60—10	27·06	22·12	18·51	15·82
20	26·35	21·70	18·25	15·67
30	25·70	21·37	17·98	15·50
40	25·12	20·87	17·72	15·30
50	24·62	20·51	17·43	15·08
60	24·27	20·23	17·22	14·93
10—65—15	26·68	21·88	18·35	15·72
25	25·98	21·45	18·09	15·55
35	25·36	21·04	17·81	15·37
45	24·80	20·64	17·53	15·16
55	24·33	20·27	17·26	14·95
65	24·03	20·04	17·05	14·79
10—70—10	27·02	22·08	18·51	15·83
20	26·30	21·65	18·25	15·67
30	25·63	21·22	17·96	15·47
40	25·03	20·80	17·66	15·26
50	24·50	20·41	17·35	15·02
60	24·08	20·07	17·09	14·82
70	23·85	19·88	16·93	14·68
15—20—20	27·06	22·20	18·65	15·96
15—30—20	26·60	21·92	18·47	15·86
30	26·05	21·60	18·26	15·73

TABLE V.—*continued.*

Ages	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.
15—40—20	26·27	21·71	18·33	15·75
30	25·62	21·30	18·06	15·58
40	25·08	20·93	17·82	15·42
15—50—20	26·02	21·51	18·18	15·64
30	25·30	21·06	17·88	15·45
40	24·68	20·64	17·60	15·25
50	24·18	20·27	17·33	15·05
15—60—20	25·89	21·42	18·10	15·58
30	25·14	20·94	17·80	15·38
40	24·47	20·48	17·48	15·15
50	23·90	20·06	17·16	14·91
15—70—20	25·82	21·36	18·05	15·54
30	25·06	20·87	17·73	15·32
40	24·37	20·39	17·40	15·09
50	23·76	19·94	17·06	14·83
60	23·27	19·55	16·75	14·58
70	20·00	19·32	16·56	14·43
20—20—20	26·78	22·04	18·54	15·90
20—30—20	26·25	21·72	18·35	15·78
30	25·62	21·34	18·12	15·63
20—40—20	25·87	21·47	18·18	15·66
30	25·13	21·00	17·88	15·48
40	24·50	20·59	17·60	15·28
20—50—20	25·58	21·25	18·01	15·53
30	24·76	20·73	17·68	15·32
40	24·05	20·25	17·35	15·09
50	23·50	19·84	17·04	14·86
20—60—20	25·44	21·15	17·93	15·47
30	24·58	20·60	17·57	15·24
40	23·82	20·08	17·21	14·98
50	23·17	19·60	16·86	14·72
60	21·71	19·24	16·57	14·50
20—70—20	25·37	21·08	17·89	15·43
30	24·49	20·52	17·51	15·18
40	23·70	19·98	17·13	14·92
50	23·01	19·46	16·74	14·62
60	22·47	19·03	16·40	14·35
70	22·16	18·77	16·18	14·17
30—30—30	24·80	20·87	17·83	15·46
30—40—30	24·18	20·42	17·52	15·24
40	23·34	19·85	17·14	14·98
30—50—30	23·63	20·04	17·24	15·03
40	22·72	19·39	16·80	14·73
50	21·97	18·84	16·39	14·42

TABLE V.—*continued.*

Ages	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.
30—60—30	23·45	19·87	17·11	14·93
40	22·42	19·16	16·62	14·58
50	21·56	18·53	16·14	14·23
60	20·95	18·05	15·77	14·93
30—70—30	23·32	19·76	17·02	14·85
40	22·26	19·03	16·51	14·49
50	21·34	18·35	16·00	14·11
60	20·62	17·78	15·54	13·74
70	20·21	17·44	15·25	13·50
40—40—40	22·35	19·18	16·70	14·68
40—50—40	21·48	18·56	16·22	14·32
50	20·41	17·72	15·65	13·90
40—60—40	21·05	18·22	15·96	14·12
50	19·83	17·33	15·29	13·62
60	19·00	16·67	14·78	13·22
40—70—40	20·83	18·04	15·82	14·00
50	19·55	17·09	15·10	13·46
60	18·56	16·31	14·48	12·96
70	18·02	15·86	14·10	12·65
50—50—50	19·06	16·77	14·90	13·33
50—60—50	18·20	16·12	14·40	12·95
60	16·95	15·14	13·62	12·33
50—70—50	17·76	15·77	14·08	12·69
60	16·30	14·60	13·17	11·95
70	15·48	13·92	12·60	11·47
60—60—60	15·21	13·76	12·54	11·46
60—70—60	14·16	12·88	11·80	10·83
70	12·84	11·77	10·86	10·04
70—70—70	10·98	10·20	9·49	8·86

TABLE VI.

For renewing *any number of years lapsed or expired in a lease originally granted for* 14 *years, at the several rates of* 3, 4, 5, 6, 8, 10, *and* 11·80 *per cent. Interest.*

Years	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.	Years' purchase, 8 per cent.	Years' purchase, 10 per cent.	Years' purchase, 11·80 per cent.
1	0·66	0·58	0·51	0·44	0·34	0·26	0·21
2	1·34	1·18	1·04	0·91	0·71	0·55	0·44
3	2·04	1·80	1·59	1·41	1·11	0·87	0·71
4	2·77	2·45	2·18	1·93	1·53	1·22	1·00
5	3·51	3·13	2·79	2·49	2·00	1·61	1·33
6	4·28	3·83	3·44	3·09	2·50	2·03	1·69
7	5·07	4·56	4·11	3·71	3·04	2·50	2·10
8	5·88	5·32	4·82	4·38	3·62	3·01	2·56
9	6·72	6·11	5·57	5·08	4·25	3·58	3·07
10	7·58	6·93	6·35	5·83	4·93	4·20	3·65
11	8·47	7·79	7·18	6·62	5·67	4·88	4·29
12	9·38	8·68	8·04	7·46	6·46	5·63	5·00
13	10·33	9·60	9·15	8·35	7·32	6·46	5·80
14	11·30	10·56	9·90	9·30	8·24	7·37	6·70

TABLE VII.

For renewing *any number of years lapsed or expired in a Lease originally granted for* 21 *years, at the several rates of* 3, 4, 5, 6, 7, 8, 10, *and* 11·50 *per cent. interest.*

Years	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.	Years' purchase, 7 per cent.	Years' purchase, 8 per cent.	Years' purchase, 10 per cent.	Years' purchase, 11·50 per cent.
1	·538	·439	·359	·294	·242	·199	·135	·100
2	1·091	·895	·736	·606	·500	·413	·284	·213
3	1·661	1·370	1·132	·936	·776	·645	·447	·338
4	2·249	1·853	1·547	1·287	1·072	·895	·627	·477
5	2·854	2·377	1·983	1·658	1·389	1·165	·825	·633
6	3·477	2·911	2·441	2·052	1·728	1·457	1·043	·806
7	4·119	3·466	2·922	2·469	2·090	1·773	1·282	1·000
8	4·780	4·043	3·428	2·911	2·478	2·113	1·545	1·216

TABLE VII.—*continued.*

Years	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.	Years' purchase, 7 per cent.	Years' purchase, 8 per cent.	Years' purchase, 10 per cent.	Years' purchase, 11·50 per cent.
9	5·461	4·644	3·958	3·380	2·893	2·481	1·835	1·457
10	6·162	5·269	4·515	3·877	3·337	2·878	2·154	1·726
11	6·885	5·918	5·099	4·404	3·812	3·307	2·504	2·026
12	7·629	6·594	5·713	4·962	4·320	3·770	2·890	2·361
13	8·395	7·296	6·358	5·554	4·864	4·270	3·314	2·734
14	9·185	8·027	7·035	6·182	5·446	4·810	3·780	3·151
15	9·998	8·787	7·745	6·847	6·069	5·394	4·293	3·616
16	10·835	9·577	8·492	7·552	6·735	6·024	4·858	4·135
17	11·698	10·399	9·275	8·299	7·448	6·705	5·479	4·713
18	12·586	11·254	10·098	9·091	8·211	7·440	6·162	5·359
19	13·502	12·143	10·962	9·931	9·028	8·234	6·913	6·079
20	14·444	13·068	11·869	10·821	9·901	9·091	7·740	6·882
21	14·415	14·029	12·821	11·764	10·836	10·017	8·649	7·779

TABLE VIII.

For renewing *any number of years lapsed or expired in a Lease originally granted for* 40 *years, at the several rates of* 3, 4, 5, 6, 7, 8, *and* 10 *per cent. interest.*

Years	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.	Years' purchase, 7 per cent.	Years' purchase, 8 per cent.	Years' purchase, 10 per cent.
1	·307	·208	·142	·097	·067	·046	·022
2	·622	·425	·291	·200	·138	·096	·046
3	·948	·650	·448	·309	·215	·149	·073
4	1·283	·884	·612	·425	·397	·207	·102
5	1·628	1·128	·785	·548	·384	·270	·135
6	1·983	1·382	·966	·678	·478	·338	·170
7	2·349	1·645	1·157	·816	·578	·411	·210
8	2·726	1·919	1·356	·962	·685	·489	·253
9	3·114	2·204	1·566	1·117	·800	·575	·300
10	3·514	2·501	1·787	1·281	·923	·667	·352
11	3·926	2·809	2·018	1·456	1·054	·766	·409
12	4·351	3·130	2·261	1·640	1·195	·873	·472
13	4·788	3·463	2·516	1·836	1·345	·989	·542
14	5·238	3·810	2·784	2·043	1·506	1·114	·618
15	5·702	4·171	3·065	2·263	1·678	1·250	·702

TABLE VIII.—*continued.*

Years	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.	Years' purchase, 7 per cent.	Years' purchase, 8 per cent.	Years' purchase, 10 per cent.
16	6·179	4·546	3·360	2·496	1·862	1·396	·794
17	6·671	4·936	3·670	2·743	2·060	1·553	·896
18	7·178	5·342	3·996	3·005	2·270	1·724	1·007
19	7·700	5·764	4·338	3·282	2·496	1·908	1·130
20	8·237	6·202	4·697	3·576	2·738	2·106	1·265
21	8·791	6·659	5·074	3·888	2·996	2·321	1·414
22	9·361	7·133	5·469	4·219	3·273	2·553	1·577
23	9·949	7·627	5·885	4·569	3·568	2·803	1·757
24	10·554	8·140	6·321	4·940	3·885	3·073	1·955
25	11·177	8·674	6·779	5·334	4·224	3·365	2·173
26	11·819	9·230	7·260	5·751	4·586	3·680	2·412
27	12·480	9·807	7·766	6·194	4·974	4·021	2·675
28	13·161	10·408	8·296	6·662	5·389	4·388	2·965
29	13·862	11·032	8·853	7·159	5·833	4·785	3·284
30	14·584	11·682	9·437	7·686	6·308	5·214	3·634
31	15·329	12·357	10·051	8·245	6·816	5·677	4·020
32	16·095	13·060	10·696	8·836	7·360	6·178	4·444
33	16·884	13·791	11·373	9·464	7·942	6·718	4·910
34	17·697	14·551	12·083	10·129	8·566	7·301	5·424
35	18·535	15·341	12·830	10·834	9·232	7·932	5·988
36	19·398	16·163	13·613	11·581	9·944	8·612	6·609
37	20·286	17·018	14·436	12·373	10·707	9·347	7·292
38	21·201	17·907	15·300	13·213	11·524	10·141	8·043
39	22·144	18·831	16·207	14·103	12·397	10·998	8·870
40	23·115	19·793	17·159	15·046	13·332	11·924	9·779

TABLE IX.

For renewing *with* One Life, *the Lease of an Estate originally held on* Three Lives, *at the several rates of* 3, 4, 5, *and* 6 *per cent. interest.*

Life put in	Ages of lives in possession	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.
10	25—25	2·832	2·012	1·474	1·072
	25—35	3·302	2·346	1·656	1·236
	25—45	4·059	2·930	2·010	1·529
	25—55	4·630	3·377	2·412	1·791
	25—65	5·157	3·798	2·850	2·156
	25—75	5·454	4·051	3·061	3·378

TABLE IX.—*continued.*

Life put in	Ages of lives in possession	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.
10	35—35	4·063	2·914	2·147	1·534
	35—45	4·775	3·264	2·397	1·862
	35—55	5·294	3·836	2·844	2·199
	35—65	6·041	4·442	3·340	3·564
	35—75	6·612	4·941	3·772	2·970
	45—45	5·663	3·919	2·899	2·266
	45—55	6·350	4·652	3·482	2·677
	45—65	7·316	5·444	4·136	3·226
	45—75	7·898	5·947	4·562	3·600
	55—55	7·722	5·755	4·380	3·271
	55—65	8·683	6·625	5·004	4·042
	55—75	9·819	7·542	5·902	4·744
	65—65	10·327	7·904	6·172	4·966
	65—75	11·630	9·079	7·209	5·882
15	25—25	2·528	1·844	1·364	0·995
	25—35	2·884	2·087	1·540	1·190
	25—45	3·590	2·631	1·821	1·445
	25—55	4·128	3·045	2·299	1·669
	25—65	4·627	3·444	3·619	2·112
	25—75	4·911	3·679	2·814	2·228
	35—35	3·584	2·612	1·754	1·422
	35—45	4·255	3·111	2·177	1·754
	35—55	4·730	3·471	2·601	2·049
	35—65	5·439	4·048	3·073	2·493
	35—75	5·990	4·522	3·483	2·787
	45—45	5·073	3·538	2·646	2·163
	45—55	5·717	4·234	3·200	2·522
	45—65	6·637	4·990	3·814	3·147
	45—75	7·196	5·462	4·224	3·409
	55—55	7·020	5·285	4·056	3·063
	55—65	7·932	6·023	4·656	3·803
	55—75	9·033	6·992	5·511	4·484
	65—65	9·644	7·479	5·900	4·690
	65—75	10·770	8·461	6·760	5·581
20	25—25	2·185	1·625	1·242	0·886

TABLE IX.—*continued.*

Life put in	Ages of lives in possession	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.
20	25—35	2·494	1·835	1·387	1·112
	25—45	3·146	2·343	1·636	1·329
	25—55	3·626	2·727	2·087	1·514
	25—65	4·119	3·090	2·390	1·937
	25—75	4·391	3·333	2·577	2·044
	35—35	3·128	2·316	1·626	1·279
	35—45	3·735	2·777	2·110	1·616
	35—55	4·172	3·108	2·358	1·868
	35—65	4·858	3·651	2·808	2·291
	35—75	5·388	4·117	3·203	2·572
	45—45	4·400	3·165	2·396	2·030
	45—55	5·098	3·820	2·919	2·335
	45—65	5·977	4·543	3·515	2·937
	45—75	6·513	4·997	3·899	3·186
	55—55	6·329	4·790	3·529	2·823
	55—65	7·200	5·521	4·223	3·532
	55—75	8·264	6·458	5·131	4·191
	65—65	8·846	6·921	5·500	4·384
	65—75	9·933	7·871	6·332	5·248

TABLE X.

Showing the present value of £1 due any number of years hence, at the several rates of 3, 4, 5, 6, 7, and 8 per cent. interest.

Years	Year's purchase, 3 per cent.	Year's purchase, 4 per cent.	Year's purchase, 5 per cent.	Year's purchase, 6 per cent.	Year's purchase, 7 per cent.	Year's purchase, 8 per cent.
1	·9709	·9615	·9524	·9434	·9346	·9259
2	·9430	·9246	·9070	·8900	·8734	·8573
3	·9151	·8890	·8638	·8396	·8163	·7938
4	·8885	·8548	·8227	·7921	·7629	·7350
5	·8626	·8219	·7835	·7473	·7130	·6806
6	·8375	·7903	·7462	·7050	·6663	·6302
7	·8131	·7599	·7107	·6651	·6227	·5835
8	·7894	·7307	·6768	·6274	·5820	·5403

Table X.—*continued.*

Years	Year's purchase, 3 per cent.	Year's purchase, 4 per cent.	Year's purchase, 5 per cent.	Year's purchase, 6 per cent.	Year's purchase, 7 per cent.	Year's purchase, 8 per cent.
9	·7664	·7026	·6446	·5919	·5439	·5002
10	·7441	·6756	·6139	·5584	·5084	·4632
11	·7224	·6496	·5847	·5268	·4751	·4289
12	·7014	·6246	·5568	·4970	·4440	·3971
13	·6810	·6006	·5303	·4688	·4150	·3677
14	·6611	·5775	·5051	·4423	·3878	·3405
15	·6419	·5553	·4810	·4173	·3624	.3152
16	·6232	·5339	·4581	·3936	·3387	·2919
17	·6050	·5134	·4363	·3714	·3166	·2703
18	·5874	·4936	·4155	·3503	·2959	·2502
19	·5703	·4746	·3957	·3118	·2765	·2317
20	·5537	·4564	·3769	·2942	·2584	·2145
21	·5375	·4388	·3589	·2775	·2415	·1987
22	·5219	·4220	·3418	·2775	·2257	·1839
23	·5067	·4057	·3256	·2618	·2109	·1703
24	·4919	·3901	·3101	·2470	·1971	·1577
25	·4776	·3751	·2953	·2330	·1842	·1460
26	·4637	·3607	·2812	·2198	·1722	·1352
27	·4502	·3468	·2678	·2074	·1609	·1252
28	·4371	·3335	·2551	·1956	·1504	·1159
29	·4243	·3207	·2429	·1846	·1406	·1073
30	·4120	·3083	·2314	·1741	·1314	·0994
31	·4000	·2965	·2204	·1643	·1228	·0920
32	·3883	·2851	·2099	·1550	·1147	·0852
33	·3770	·2741	·1999	·1462	·1072	·0789
34	·3660	·2636	·1904	·1379	·1002	·0730
35	·3554	·2534	·1813	·1301	·0937	·0676
36	·3450	·2437	·1727	·1227	·0875	·0626
37	·3350	·2343	·1644	·1158	·0818	·0580
38	·3252	·2253	·1566	·1092	·0765	·0537
39	·3158	·2166	·1491	·1031	·0715	·0497
40	·3066	·2083	·1420	·0972	·0668	·0460
41	·2976	·2003	·1353	·0917	·0624	·0426
42	·2890	·1926	·1288	·0865	·0583	·0395
43	·2805	·1852	·1227	·0816	·0545	·0365
44	·2724	·1780	·1169	·0770	·0509	·0338
45	·2644	·1712	·1113	·0727	·0476	·0313
46	·2567	·1646	·1060	·0685	·0445	·0290
47	·2493	·1583	·1009	·0647	·0416	·0269
48	·2420	·1522	·0961	·0610	·0389	·0249
49	·2350	·1463	·0916	·0575	·0363	·0230
50	·2281	·1407	·0872	·0543	·0339	·0213
51	·2215	·1353	·0831	·0512	·0317	·0197
52	·2150	·1301	·0791	·0483	·0297	·0183

Table X.—*continued.*

Years	Year's purchase, 3 per cent.	Year's purchase, 4 per cent.	Year's purchase, 5 per cent.	Year's purchase, 6 per cent.	Year's purchase, 7 per cent.	Year's purchase, 8 per cent.
53	·2088	·1251	·0753	·0456	·0277	·0169
54	·2027	·1203	·0717	·0430	·0259	·0157
55	·1968	·1157	·0683	·0406	·0242	·0145
56	·1910	·1112	·0651	·0383	·0226	0134
57	·1855	·1069	·0620	·0361	·0211	·0124
58	·1801	·1028	·0590	·0341	·0198	·0115
59	·1748	·0989	·0562	·0321	·0185	·0107
60	·1697	·0951	·0535	·0303	·0173	·0099
61	·1648	·0914	·0510	·0286	·0161	·0091
62	·1600	·0879	·0486	·0270	·0151	·0085
63	·1553	·0845	·0462	·0255	·0141	·0078
64	·1508	·0813	·0440	·0240	·0132	·0073
65	·1464	·0781	·0419	·0227	·0123	·0067
66	·1421	·0751	·0399	·0214	·0115	·0062
67	·1380	·0722	·0380	·0202	·0107	·0058
68	·1340	·0695	·0362	·0190	·0100	·0053
69	·1301	·0668	·0345	·0179	·0094	·0049
70	·1263	·0642	·0329	·0169	·0088	·0046
71	·1226	·0617	·0313	·0160	·0082	·0042
72	·1190	·0594	·0298	·0151	·0077	·0039
73	·1156	·0571	·0284	·0142	·0072	·0036
74	·1122	·0549	·0270	·0134	·0067	·0034
75	·1089	·0528	·0258	·0127	·0063	·0031
76	·1058	·0508	·0245	·0119	·0058	·0029
77	·1027	·0488	·0234	·0113	·0055	·0027
78	·0997	·0469	·0222	·0106	·0051	·0025
79	·0968	·0451	·0212	·0100	·0048	·0023
80	·0940	·0434	·0202	·0095	·0045	·0021
81	·0912	·0417	·0192	·0089	·0042	·0020
82	·0886	·0401	·0183	·0084	·0039	·0018
83	·0860	·0386	·0174	·0079	·0036	·0017
84	·0835	·0371	·0168	·0075	·0034	·0016
85	·0811	·0357	·0158	·0071	·0032	·0014
86	·0787	·0343	·0151	·0067	·0030	·0013
87	·0764	·0330	·0143	·0063	·0028	·0012
88	·0742	·0317	·0137	·0059	·0026	·0011
89	·0720	·0305	·0130	·0056	·0024	·0011
90	·0699	·0293	·0124	·0053	·0023	·0010
91	·0679	·0282	·0118	·0050	·0021	·0009
92	·0659	·0271	·0112	·0047	·0020	·0008
93	·0640	·0261	·0107	·0044	·0019	·0008
94	·0621	·0251	·0102	·0042	·0017	·0007
95	·0603	·0241	·0097	·0039	·0016	·0007
96	·0586	·0232	·0092	·0037	·0015	·0006

TABLE X.—*continued.*

Years	Year's purchase, 3 per cent.	Year's purchase, 4 per cent.	Year's purchase, 5 per cent.	Year's purchase, 6 per cent.	Year's purchase, 7 per cent.	Year's purchase, 8 per cent.
97	·0569	·0223	·0088	·0035	·0014	·0006
98	·0552	·0214	·0084	·0033	·0013	·0005
99	·0536	·0206	·0080	·0031	·0012	·0005
100	·0520	·0198	·0076	·0030	·0012	·0005

TABLE XI.

Showing the present value of a Reversionary Estate in Fee after the Life of a person of given age, at the several rates of 3, 4, 5, 6, 7, *and* 8 *per cent. interest.* (*Carlisle Table of Mortality.*)

Age in possession	Years' purchase, 3 per cent.	Years' purchase, 4 per cent.	Years' purchase, 5 per cent.	Years' purchase, 6 per cent.	Years' purchase, 7 per cent.	Years' purchase, 8 per cent.
5	9·640	5·406	3·410	2·342	1·712	1·316
10	9·821	5·415	3·331	2·219	1·569	1·166
15	10·751	6·044	3·773	2·541	1·813	1·356
20	11·639	6·637	4·183	2·832	2·027	1·515
25	12·668	7·355	4·697	3·211	2·314	1·738
30	13·777	8·148	5·277	3·647	2·650	2·012
35	14·900	8·959	5·873	4·094	2·991	2·265
40	16·190	9·926	6·610	4·665	3·441	2·625
45	17·470	10·896	7·352	5·239	3·889	2·980
50	19·030	12·131	8·340	6·036	4·537	3·513
55	20·925	13·700	9·653	7·143	5·479	4·321
60	22·842	15·337	11·060	8·363	6·543	5·255
65	24·416	16·693	12·235	9·386	7·439	6·043
70	26·210	18·291	13·664	10·669	8·596	7·090
75	27·821	19·761	15·011	11·907	9·737	8·145
80	28·968	20·817	15·985	12·809	10·573	8·923
85	30·104	21·885	16·991	13·758	11·471	9·773
90	30·834	22·584	17·661	14·401	12·088	10·367
95	30·576	22·326	17·404	14·145	12·835	10·117

TABLE XII.

Showing the present value of a Reversionary Estate in Fee, after the Longest *of* Two Lives *of given ages, at the several rates of* 3, 4, 5, *and* 6 *per cent. interest.*

Ages	**Years' purchase, 3 per cent.**	**Years' purchase, 4 per cent.**	**Years' purchase, 5 per cent.**	**Years' purchase, 6 per cent.**
10—10	8·346	4·231	2·387	1·441
10—20	9·183	4·799	2·760	1·702
10—30	9·898	5·282	3·093	1·938
10—40	10·613	5·793	3·466	2·213
10—50	11·278	6·298	3·852	2·512
10—60	11·845	6·752	4·219	2·811
10—70	12·283	7·124	4·538	3·803
10—80	12·536	7·351	4·741	3·268
20—20	10·190	5·469	3·218	2·026
20—30	11·059	6·059	3·628	2·318
20—40	11·943	6·694	4·093	2·663
20—50	12·782	7·333	4·585	3·046
20—60	13·515	7·923	5·064	3·438
20—70	14·110	8·432	5·502	3·814
20—80	14·483	8·767	5·803	4·088
30—30	12·078	6·751	4·111	2·662
30—40	13·131	7·512	4·667	3·074
30—50	14·135	8·276	5·255	3·533
30—60	15·012	8·982	5·828	4·001
30—70	15·720	9·587	6·347	4·448
30—80	16·160	9·982	6·703	4·771
40—40	14·401	8·426	5·342	3·578
40—50	15·639	9·373	6·071	4·146
40—60	16·733	10·254	6·786	4·731
40—70	17·622	11·013	7·438	5·292
40—80	18·173	11·509	7·884	5·697
50—50	17·175	10·563	6·984	4·862
50—60	18·581	11·686	7·907	5·618
50—70	19·745	12·681	8·762	6·355
50—80	20·478	13·340	9·356	6·894
60—60	20·385	13·148	9·104	6·605
60—70	21·961	14·500	10·265	7·608
60—80	22·972	15·410	11·085	8·351
70—70	24·126	16·365	11·884	9·015

TABLE XIII.

Showing the Annual Sinking Fund *that with compound interest will amount to* £1 *at the end of any given number of years, at the several rates of* 3, 4, 5, 6, 7, *and* 8 *per cent. interest.*

Years	Year's purchase, 3 per cent.	Year's purchase, 4 per cent.	Year's purchase, 5 per cent.	Year's purchase, 6 per cent.	Year's purchase, 7 per cent.	Year's purchase, 8 per cent.
1	1·0000	1·0000	1·0000	1·0000	1·0000	1·0000
2	·4926	·4902	·4878	·4854	·4831	·4808
3	·3235	·3204	·3172	·3141	·3111	·3080
4	·2390	·2355	·2320	·2286	·2252	·2219
5	·1884	·1846	·1810	·1774	·1739	·1705
6	·1546	·1508	·1470	·1434	·1398	·1363
7	·1305	·1266	·1228	·1191	·1156	·1121
8	·1125	·1085	·1047	·1010	·0975	·0940
9	·0984	·0945	·0907	·0870	·0835	·0801
10	·0872	·0833	·0795	·0759	·0724	·0690
11	·0781	·0742	·0704	·0668	·0634	·0601
12	·0705	·0666	·0628	·0593	·0559	·0527
13	·0640	·0601	·0565	·0530	·0497	·0465
14	·0585	·0547	·0510	·0476	·0443	·0413
15	·0518	·0499	·0463	·0430	·0398	·0368
16	·0496	·0458	·0423	·0390	·0359	·0330
17	·0460	·0422	·0387	·0354	·0324	·0296
18	·0427	·0390	·0355	·0324	·0294	·0267
19	·0398	·0361	·0327	·0296	·0268	·0241
20	·0372	·0336	·0302	·0272	·0244	·0219
21	·0349	·0313	·0280	·0250	·0223	·0198
22	·0327	·0292	·0260	·0230	·0204	·0180
23	·0308	·0273	·0241	·0213	·0187	·0164
24	·0290	·0256	·0225	·0197	·0172	·0150
25	·0274	·0240	·0210	·0182	·0158	·0137
26	·0259	·0226	·0196	·0169	·0146	·0125
27	·0246	·0212	·0183	·0157	·0134	·0114
28	·0233	·0200	·0171	·0146	·0124	·0105
29	·0221	·0189	·0160	·0136	·0114	·0096
30	·0210	·0178	·0151	·0126	·0106	·0088
31	·0200	·0169	·0141	·0118	·0098	·0081
32	·0190	·0160	·0133	·0110	·0091	·0075
33	·0182	·0151	·0125	·0103	·0084	·0069
34	·0173	·0143	·0118	·0096	·0078	·0063
35	·0165	·0136	·0111	·0090	·0072	·0058
36	·0158	·0129	·0104	·0084	·0067	·0053
37	·0151	·0122	·0098	·0079	·0052	·0049
38	·0145	·0116	·0093	·0074	·0058	·0045

TABLE XIII.—*continued.*

Years	Year's purchase, 3 per cent.	Year's purchase, 4 per cent.	Year's purchase, 5 per cent.	Year's purchase, 6 per cent.	Year's purchase, 7 per cent.	Year's purchase, 8 per cent.
39	·0138	·0111	·0088	·0069	·0054	·0042
40	·0133	·0105	·0083	·0065	·0050	·0039
41	·0127	·0100	·0078	·0061	·0047	·0036
42	·0122	·0095	·0074	·0057	·0043	·0033
43	·0117	·0091	·0070	·0053	·0040	·0030
44	·0112	·0087	·0066	·0050	·0038	·0028
45	·0108	·0083	·0063	·0047	·0035	·0026
46	·0104	·0079	·0059	·0044	·0033	·0024
47	·0100	·0075	·0056	·0041	·0030	·0022
48	·0096	·0072	·0053	·0039	·0028	·0020
49	·0092	·0069	·0050	·0037	·0026	·0019
50	·0089	·0066	·0048	·0034	·0025	·0017
51	·0085	·0063	·0045	·0032	·0023	·0016
52	·0082	·0060	·0043	·0030	·0021	·0015
53	·0079	·0057	·0041	·0029	·0020	·0014
54	·0076	·0055	·0039	·0027	·0019	·0013
55	·0073	·0052	·0037	·0025	·0017	·0012
56	·0071	·0050	·0035	·0024	·0016	·0011
57	·0068	·0048	·0033	·0022	·0015	·0010
58	·0066	·0046	·0031	·0021	·0014	·0009
59	·0064	·0044	·0030	·0020	·0013	·0009
60	·0061	·0042	·0028	·0019	·0012	·0008
61	·0059	·0040	·0027	·0018	·0011	·0007
62	·0057	·0039	·0026	·0017	·0011	·0007
63	·0055	·0037	·0024	·0016	·0010	·0006
64	·0053	·0035	·0023	·0015	·0009	·0006
65	·0051	·0034	·0022	·0014	·0009	·0005
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91	·0022	·0012	·0006	·0003	·0001	·0001
92	·0021	·0011	·0006	·0003	·0001	·0001
93	·0021	·0011	·0005	·0003	·0001	·0001
94	·0020	·0010	·0005	·0003	·0001	·0001
95	·0019	·0010	·0005	·0002	·0001	·0001
96	·0019	·0010	·0005	·0002	·0001	·0001
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